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Bay Area's Computer Magazine

AUG. 8, 1989 • #59

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Wireless LANs And Handheld Workstations

KEN BIBA (l) & JOHN ELLENBY OF AGILIS

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Paradox 3

NEC UltraLite Laptop

MAC @ WORK:
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Memory	2 MB RAM	2 MB RAM	4 MB RAM
CPU	80386-20	80386-25	80386-33
Wait States	0	0	0
BIOS	AMI	AMI	AMI
1.2 MB Floppy Drive	Yes	Yes	Yes
1.44 MB Floppy Drive	Yes	Yes	Yes
Hard Disk (28 ms)	40 MB	80 MB	150 MB
Disk Controller	1:1 Interleave MFM	1:1 Interleave MFM	ESDI
I/O Ports	1 Serial, 1 Parallel	1 Serial, 1 Parallel	1 Serial, 1 Parallel
Mouse	Microsoft/Logitech	Microsoft/Logitech	Microsoft/Logitech
VGA Display	Orchid ProDesigner	Orchid ProDesigner	Orchid ProDesigner
Video Monitor	VGA	NEC 2A VGA	NEC 3D VGA
Power Supply	200W	230W	230W
Key Board	101 Enhanced	101 Enhanced	101 Enhanced
Software Included and Pre-Installed In Hard Disk Note: * Integrated 7 Advanced Software Package ** Easy DOS It *** Digital Research	*Spreadsheet *Word Processor *Webster Dictionary *Relational Database *Communication *Business Graphics *Terminal Emulation **Boot-up Main Menu ***DR DOS	*Spreadsheet *Word Processor *Webster Dictionary *Relational Database *Communication *Business Graphics *Terminal Emulation **Boot-up Main Menu ***DR DOS	*Spreadsheet *Word Processor *Webster Dictionary *Relational Database *Communication *Business Graphics *Terminal Emulation **Boot-up Main Menu ***DR DOS

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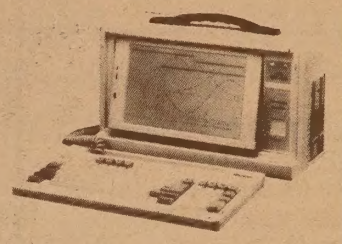

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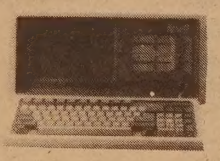

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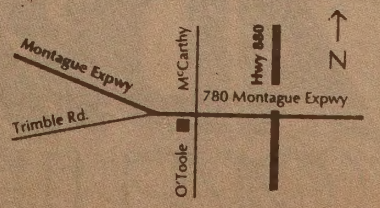

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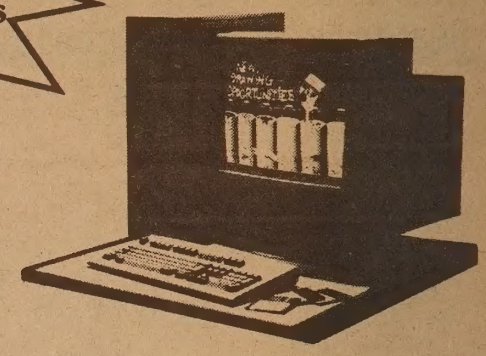

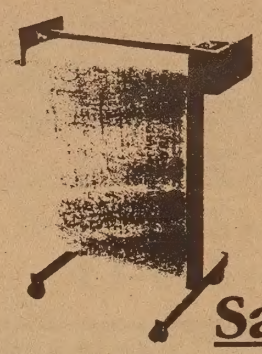

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AUG. 8, 1989 ISSUE #59
MICROTIMES™

FEATURES

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DASnet's Inter-System Communications To The Rescue
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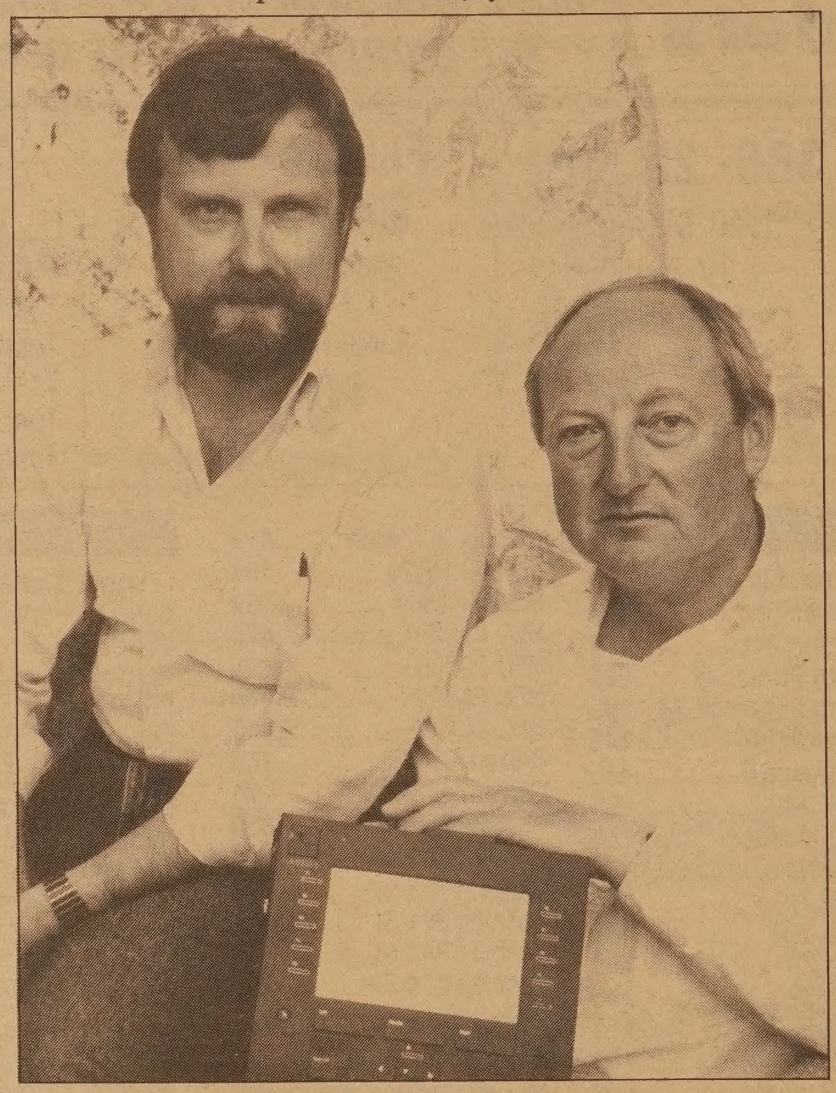
Cover and contents photos: Michael Jay



Ken Biba (l) and John Ellenby of Agilis, with a 386-based handheld workstation.

COVER STORY

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Handheld Workstations:
New Frontiers In Mobile Computing
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Mac as a PC terminal.

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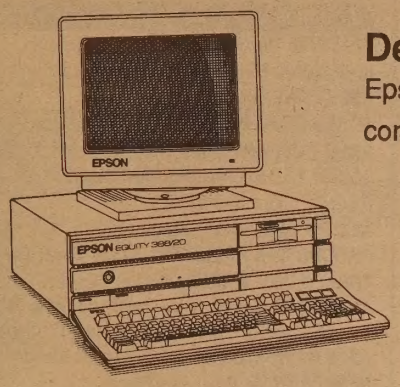

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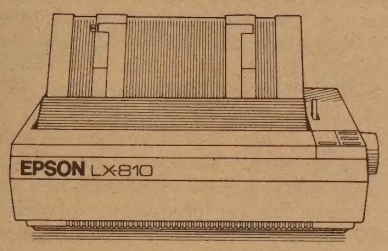

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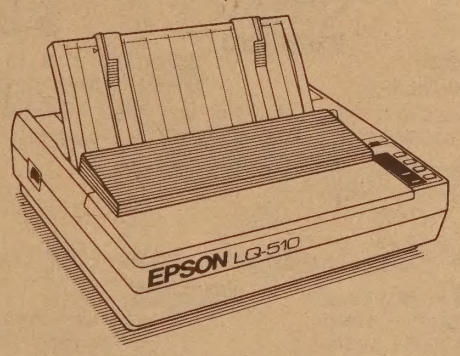

LQ-510

24-Pin Printer

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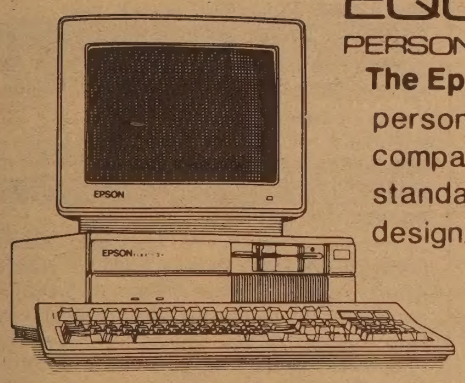

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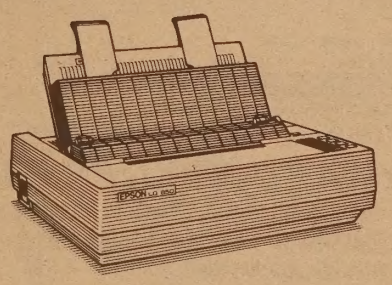

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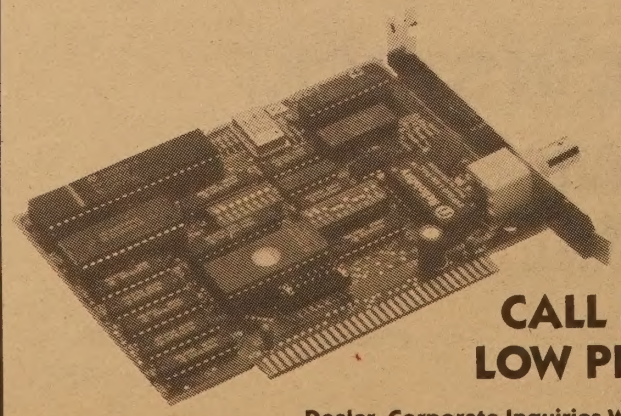

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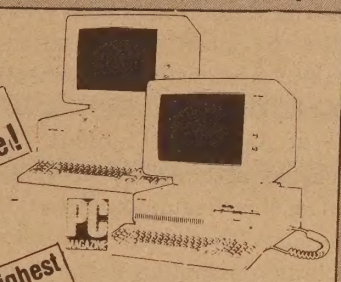

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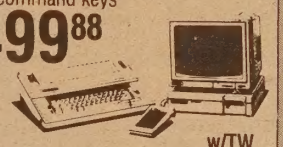

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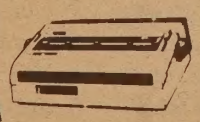

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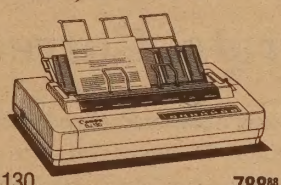

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LETTERS

Public Education: The Other Side

I am disappointed in the education overkill approach taken by Jim Warren in the June 12, 1989 issue of *MicroTimes*. His opening sentence, "I'm mad as hell (you should be, too), and we must not take it anymore!" tainted any rationality in the three columns that followed before even reading them.

Even so, I expected to read a hard-hitting piece on the growing need for upgrading computer technology programs in our public schools—something with which I would enthusiastically agree.

Instead, he used the teacher unrest situations in Los Angeles and San Jose to embark on the Far Right's extremist party line used nationally to attack public school teachers and the unions that represent them. It also laid out the agenda for handing out tuition tax credits, the first step of which is to establish so-called parental "choice" to send children to school wherever they wish, but without improving the education system one whit (the Minnesota plan)!

Not one word was devoted to explaining why teachers were forced into taking action against their school districts. Mr. Warren's approach inadvertently, therefore, paralleled the current approach of the Chinese government in attempting to suppress the groundswell for a democratic society having been put forward by the students and teachers of their great nation.

In both Los Angeles and San Jose (as representative of hundreds of other school districts), highly trained and educated teachers are being prevented from properly educating our children because they are strung out with overcrowded classes, and have little or no voice in determining what should be taught, and with what books and other teaching materials (i.e., computers). Many of our most promising young teachers become fed up with the system and drop out of teaching for more lucrative and satisfying positions. And low teacher salaries hold little attraction for prospective replacements holding a minimum of two and often three college degrees!

Suggested education reforms to improve the system from those outside the education community frequently latch on to any crazy scheme, just as long as it avoids providing any additional funding—change the configuration of the classroom, move children across district lines, use volunteers from business and industry, but heaven forbid increasing the money for schools to lower class size, buy computers or address the needs of non-English speaking or learning disabled children. It's no wonder we have such high dropout rates!

What happened in Los Angeles and San Jose represents the frustration of professional employees—not Jim Warren's "factory workers"—who are being prevented from being professional and who are demanding that something be done to change the system, not just for themselves but for the five million public school students, kindergarten through 12th grade, here in California.

Also, never attempt to compare California classrooms, with their heterogeneous pupil populations, to any other country in the world. We open our doors to educate all children. They open theirs only to the elite of their society. In California, even the dropouts have had their chance. In other countries, those who can't measure up aren't admitted in the first place. Still, we must work harder to improve our system.

Finally, both the California Teachers Association and the National Education Association are the most democratic organizations representing professional employees anywhere in the world. Teachers *are* the Association (union). They make their own decisions at the school district level, and then seek and receive the support of the CTA (state) and NEA (national). They work cooperatively with parents, school administration, the community and elected public officials whenever possible...even the Jim Warrens of this world.

I do fully agree with Mr. Warren's closing line in the *MicroTimes* article—"At issue is nothing less than our national future and well-being." That being the case, let's work together in a positive way to improve the education of all the young people in our public schools.

Ed Foglia
President
California Teachers Association
Burlingame

A Memo From Chairman Guy

You are witnessing what I consider a technological fantasy: MCI Mail to your FAX machine (because I am too lazy to walk over to our FAX machine).

Moving right along...

MicroTimes hit its sweet spot with the Startup Survival Kit in the June 12th issue. The articles about PR and venture capital were extremely informative and interesting. I think that you rivaled many issues of *Inc. Magazine* in value to an entrepreneur. You are going to change the free tabloid game if you keep it up.

Guy Kawasaki
President
ACIUS, Inc.

(*Well, as long as we're engaging in Shameless Plugs here, Guy Kawasaki's book,* The Macintosh Way, *is due Real Soon Now from Scott, Foresman, & Co., and we heartily endorse it as a treatise on Fun And Profit and the best read we've seen for months.* MicroTimes *says check it out.*—eds.)

Another VC Resource

I enjoyed your articles on venture capital and informal investment networks in the June 12th issue.

Mac-PC Graphics: Errata, Corrections, Bugs, And Fixes

I'm afraid that a few errors inadvertently crept into my article "Designer Graphics - PC to Mac and Back" in the last issue. I hope these corrections will be helpful to readers trying to thread their way through the file transfer maze.

First, the program illustrated on the second page of the article is not *PageMaker* editing a PC graphic *[though the* Artline *file was further imported as a PICT file into* PageMaker *to do the MicroTimes layout—eds.*], but Digital Research's *GEM Artline* editing a graphic element ported from *MacDraw II*. The *MacDraw* element was sent over by modem as a PICT file and first converted to the GEM format with *Ventura Publisher*. The illustration on the fourth page shows a bitmap of the rest of the *MacDraw* newsletter in a *Ventura Publisher* window. The PICT version of the file is shown scaled and printed on an HPLaserJet II printer from *Ventura Publisher*. *Ventura Publisher* handles PICT files when they are less than 50 K in size. With files originating in *MacDraw II*, a good test for their printability in *Ventura* is to see whether you can put the files into *MacDraw I* on the Mac without overloading the old program's capacity.

I discovered a bug in the printing of PC Encapsulated PostScript (EPS) files by Mac applications after last month's deadline. Although files can be converted and ported as described in the article, *PageMaker* on the Mac will display them, but refuse to print them.

Although the support staffs for *The Curator*, *Graphics Transformer*, and *PageMaker* were unable to explain this, I discovered a quick fix that allows printing of some PC EPS files from Mac applications. It turns out that the LaserWriter is rejecting the PostScript command "Showpage," which is written for PC applications. If you have an ASCII text editor on the PC, or Microsoft *Word* on the Mac, you can remove this command from the file. It appears on the very last line of a "PC" .EPS file. PostScript-only files generated by *The Graphics Transformer* will print from the Mac when the line containing the "Showpage" command is deleted.

Unfortunately, removing the "Showpage" command doesn't work for EPS files that include a preview image. Adobe's preview files appear to work on both sides, but not those produced by *The Graphics Transformer* and *GEM Artline*.

Other minor errata: The creator and filetype for *PageMaker* 3.01 publication files are "ALD3" and "ALB3", not "AL3" and "AB3". Despite rumors to the contrary, Aldus does not market a PC version of *FreeHand* at this time.

My thanks to the support team at 800-SOFTWARE, who let me use their equipment to discover the fix for printing .EPS files. Let's hope that Adobe will get together with the PC vendors to make their EPS standards a bit more uniform.

—Lenny Bailes

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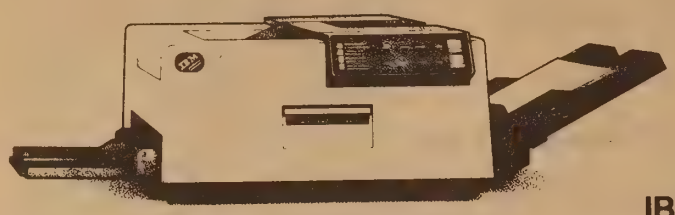

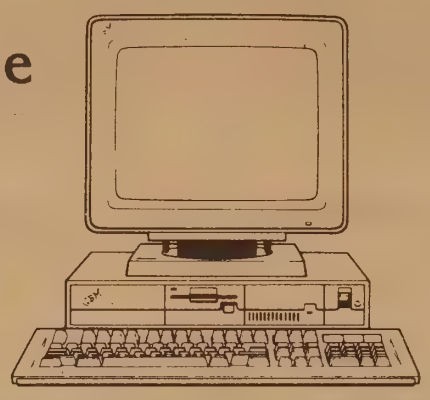

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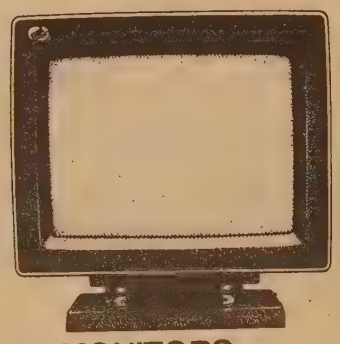

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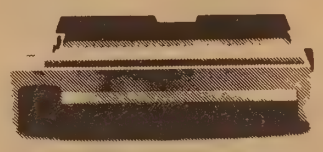

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LETTERS

Your readers may be interested to know that the Bay Area has one of the largest entrepreneurial resource networks in the United States. The network consists of several independent organizations that work in cooperation with one another.

The largest group, Silicon Valley Entrepreneur's Club, offers multiple resources for team-driven startups. Monthly attendance at meetings in Santa Clara is usually well over 100 people, with high quality speakers, resource networks, brainstorming and resident expert consultation. SVEC has a database consisting of thousands of names and organizations, the bulk of which are in the Bay Area.

Our group, The North Bay Venture Capital Club, has been meeting for two years. We hold meetings in Marin County, hosting approximately 50 people. We structured this group to provide a very lean, efficient opportunity for entrepreneurs and funding sources to become introduced to one another. While we do not allow the offering of securities in any form at our meetings, as an introductory forum we provide an invaluable service.

There are several additional organizations in the network, including an inventor's group, an organization for software entrepreneurs, a new group for women entrepreneurs, and others. I am presently seeking interested parties to help establish a focus group for Intrapreneuring (internal corporate innovation) in established companies.

Individually, these groups offer valuable assistance to the community. As a complete network, we are building what we believe to be a prototype regional support structure for innovation and the entrepreneurial process.

Readers interested in contacting Silicon Valley Entrepreneurs Club may call (408)562-6040; those interested in contacting The North Bay Venture Capital Club may call (415)331-3836.

Robert Coleman
President
The North Bay Venture Capital Club

Headhunters: Another View

In response to the guest editorial by Robert Cowan in the May 29 issue of *MicroTimes*: Cowan gives only part of the story.

He comments that qualified programmers change jobs due to frustration caused by management lacking people skills. Another factor can be assignment to inappropriate projects; a programmer is not going to be satisfied with all assignments. And management is not going to be happy with the quality and speed produced on all assignments.

More and more companies are hiring programmers, engineers, analysts, technicians, operators—all kinds of personnel on a contract basis. They are hired as temporary employees through a "job shop," not as an independent contractor. Companies get these people through "job shops" that handle withholding taxes, worker's compensation, unemployment insurance, and the payroll aspects. The worker pays his own health insurance. This isn't such a bad deal since the contract programmer's hourly rate more than covers the cost of insurance. The going rate in Los Angeles for contract programming work, for most applications, is about $35.00 per hour.

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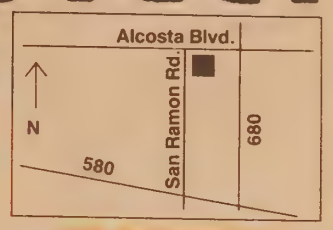

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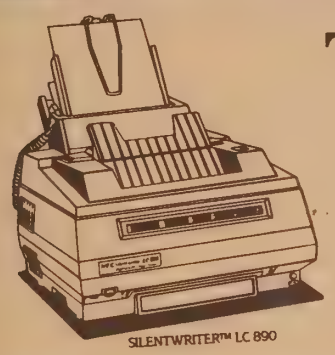

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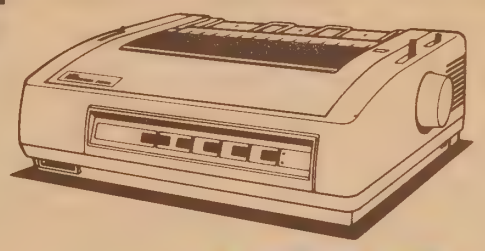
THE ECONOMIC FORECAST FOR THE REST OF THE YEAR: MORE BLACK INK.



Business runs on black ink. That's why more and more businesses are buying the new NEC Pinwriter® P5200 and P5300 dot matrix printers. No other printers give you more black ink. Because these 24-wire printers use a fabric or letter-quality, multi-strike film ribbon.

The Pinwriter P5200 and P5300 also give you 7 resident type styles plus more on optional font cards. And you can turn these models into color printers with an inexpensive user-installed option. NEC printers also have the industry's highest reliability ratings.

So keep your company in the black with a new Pinwriter P5200 or P5300 printer.

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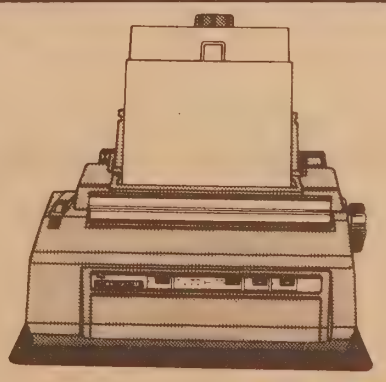

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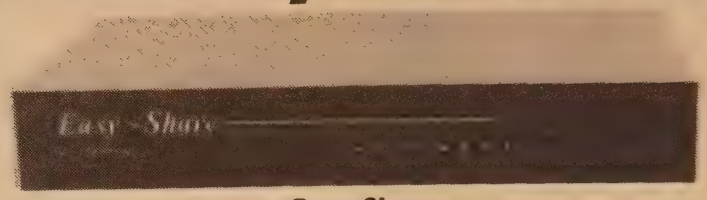

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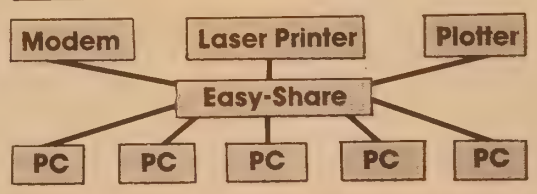

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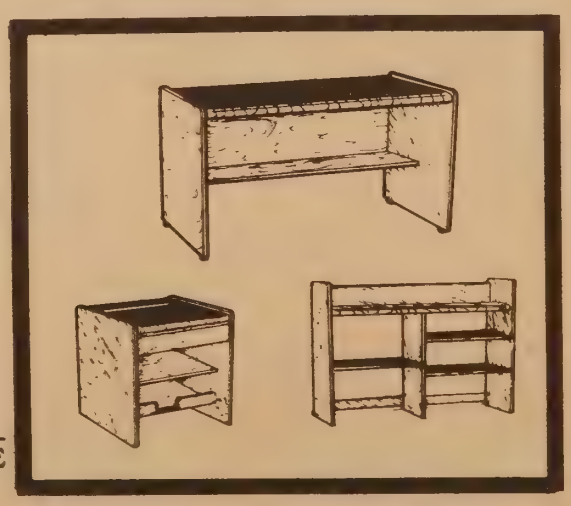

LETTERS

"More and more companies are hiring programmers, engineers, analysts, technicians, operators—all kinds of personnel on a contract basis. They are hired as temporary employees through a 'job shop,' not as an independent contractor."

can make a good amount of money for a few months of work and then travel, fish, or whatever for a few months. This is especially true if there is some overtime work that is paid at time-and-a-half. After a vacation they get another assignment at the same client or a new one. They get more experience in new situations with different people.

The clients like this arrangement because they get specific projects done on time, within budget, by pros. When the project is completed the contract is completed and the client has no more overhead—unless it's someone they want to have work on another project or make a permanent employee.

And last but not least, while "headhunters" have their niche, so do the "job shops." We advertise for people every day in the Los Angeles *Times*, sometimes running several ads. We advertise for our clients at no charge to them, and this way we increase our pool of qualified people we match to clients. We also have salespeople with experience in the industry visiting potential clients.

Bob Sisson
Recruiter
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More On PR

Robert Kay's recent article ("PR: Not Just for Big Firms?", Issue #57) on how publicity can help businesses of all sizes was excellent. He did a good job of outlining what a publicist can (and can't) do for a client. His tips on how to select one are sure to be helpful.

But good public relations is more than just headlines. Many businesses can also benefit form the other services a skilled practitioner or agency can offer. Whether these services are part of a marketing plan or not, the bottom line can be increased profits and improved customer, stockholder and employee loyalty.

Some of the services growing businesses should consider:

Employee Communications—As a firm grows, so does its needs for clear communications and expectations. PR offers a wide range of tools from posters to newsletters to training videos.

Speakers—Face-to-face communications are often the best. PR professionals can train speakers, write their speeches, and help book them.

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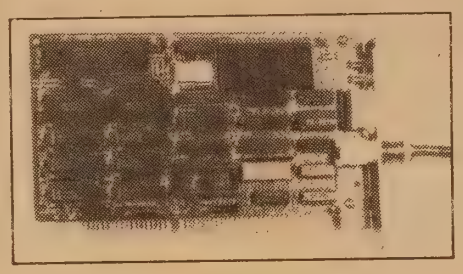

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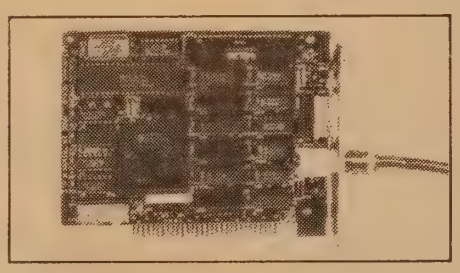

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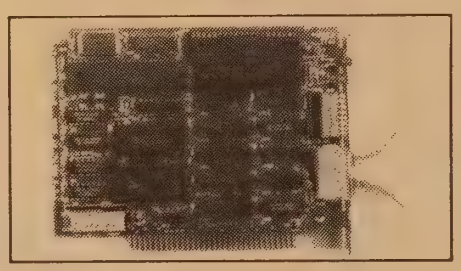

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LETTERS

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Crisis planning—What would happen if something went wrong and your product failed or your company was involved in a tragedy that adversely affected others? Proper communications planning could make the difference in your company's surviving the crisis.

Probably one of the most important services PR professionals offer their clients is advice. Their suggestions during new product or service planning can remove potential public relations pitfalls and other obstacles and make it easier for companies to be more successful.

Faith Kramer
Faith Kramer Public Relations and Marketing
Oakland

Free Speech: A Sysop's Perspective

Brock Meeks's attitude toward free speech ("Free Speech Is Where You Find It," Issue #56) on BBSes is interesting, if nothing else. He's unhappy that sysops can set the rules concerning content and access, and edgy over the idea that [BBS systems] are "private."

That's remarkable coming from a *Chronicle* reporter, but I'm grateful. I know I can count on his support when I try to force the Chron to print my series on monopolistic newspaper companies. Surely he won't argue that the Chron is any more "private" than my BBS.

Here's where I personally drew the line on my own system recently: "Dear X: If you think you can tell sysops what messages they must keep on their

"Just where do you get off demanding that I create, on my time, money, and painstakingly-created resources, a forum for you to run amok on topics of YOUR choosing? I'll give you a choice: 1) We have an extremely fundamental difference of opinion, or 2) You're nuts. Take your pick."

boards, you've a heck of a surprise coming to you. Try putting public messages, with false statements attacking the sysops' characters, in their main message areas, as you have here, and see how long your messages last.

"Just where do you get off demanding that I create, on my time, money, and painstakingly-created resources, a forum for you to run amok on topics of YOUR choosing? I'll give you a choice: 1) We have an extremely fundamental difference of opinion, or 2) You're nuts. Take your pick."

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$425
12MHZ 286

BASE SYSTEM CONSISTS OF:
• AT-COMPATIBLE 8/12MHZ MOTHERBOARD • 0/1 WAIT STATES • FCC CLASS B APPROVED • EXPANDABLE TO 1MB, ØK INSTALLED • SIX 16-BIT AND TWO 8-BIT SLOTS • 80287 MATH COPROCESSOR SOCKET • 200 WATT POWER SUPPLY • AT STYLE CASE WITH POWER-ON AND HARD DISK LEDS, RESET AND TURBO SWITCHES
BASE-286

LOADED SYSTEM $949

BASE SYSTEM ABOVE PLUS: 512K RAM, 1.2 MB FLOPPY DRIVE, MULTI IO CARD WITH HARD/FLOPPY CONTROLLER, SERIAL AND PARALLEL PORTS.
JDR-286

NORTON SI 20.5 X FASTER THAN AN XT — LANDMARK AT SPEED 18.7

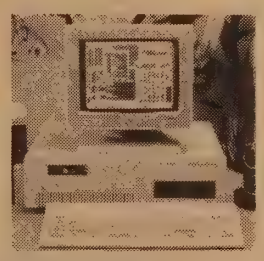
$1525
16MHZ 386

BASE SYSTEM CONSISTS OF:
• 6/8/16MHZ 80386 MOTHERBOARD • 0 WAIT STATES • FCC CLASS B APPROVED • 1 MB RAM INSTALLED • SIX 16-BIT AND TWO 8-BIT SLOTS • 80387 MATH COPROCESSOR SOCKET • 200 WATT POWER SUPPLY • AT STYLE CASE WITH POWER-ON AND HARD DISK LEDS, RESET AND TURBO SWITCHES
BASE-386

LOADED SYSTEM $1799

BASE SYSTEM ABOVE PLUS: 1.2 MB FLOPPY DRIVE, MULTI IO CARD WITH HARD/FLOPPY CONTROLLER, SERIAL AND PARALLEL PORTS
JDR-386

NORTON SI 2.1 X FASTER



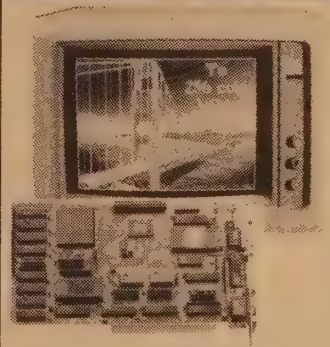
$189
10MHZ 8088

BASE SYSTEM CONSISTS OF:
• XT-COMPATIBLE 10MHZ MOTHERBOARD WITH 8 SLOTS • EXPANDABLE TO 640K, ØK INSTALLED • SWITCH SELECTABLE 10MHZ/4.77 MHZ • SOCKET FOR 8087 MATH COPROCESSOR • 150 WATT POWER SUPPLY • XT-STYLE CASE WITH POWER-ON AND HARD DISK LEDS AND TURBO SWITCH • FCC CLASS B APPROVED
BASE-88

LOADED SYSTEM $569

BASE SYSTEM ABOVE PLUS: 640K RAM, 360K FLOPPY DISK DRIVE, MULTI IO CARD WITH FLOPPY CONTROLLER, SERIAL, PARALLEL AND GAME PORTS, CLOCK-CALENDAR.
JDR-88

MONITORS



VGA graphics

NEW LOW PRICE!

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VGA PACKAGE

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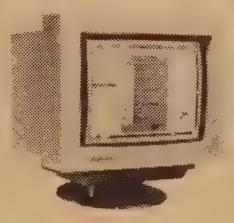
VGA-PKG

NEC IIID MULTISYNC $649.95



• 800 X 560 MAX RESOLUTION • CGA/EGA/VGA/MCGA/PGC COMPATIBLE • HERCULES AND OTHER STANDARD ADAPTORS
NEC-MULTI

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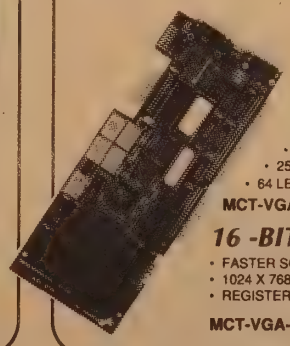

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MCT-VGA-8

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• FASTER SCREEN UPDATES • 1024 X 768 RESOLUTION • REGISTER LEVEL COMPATIBLE
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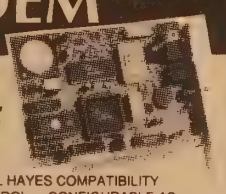
30MB	$279
150MB ESDI KIT	$999

MODEM

2400 BAUD $89.95



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MCT-121 1200 BAUD INTERNAL MODEM **$59.95**

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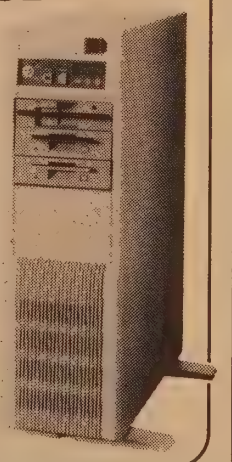
UPRIGHT CASE $249.95

• INCLUDES 250 WATT POWER SUPPLY • MOUNTS FOR 3 FLOPPY AND 4 HARD DRIVES • SPEED DISPLAY
CASE-100



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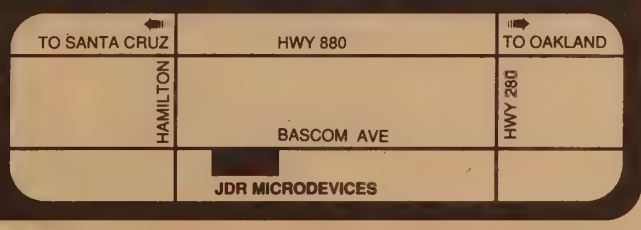

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Introducing System Micro 386. And System Micro 286. With more of everything you buy a system for. Especially value.

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Take our System Micro 386, for example. It gives you a choice of 20, 25 or 33 megahertz performance.

Its unique LSI control logic achieves 32-bit zero wait-state processing for maximum throughput.

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And System Micro 286 comes in 12, 16 and 20 megahertz versions.

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Which not only saves you money, it saves you time. Because having graphics on the same board with the CPU speeds up throughput. You get full Hercules compatibility. Plus VGA-mode (640x480) support for crisper, cleaner graphics and up to 132 spreadsheet columns onscreen at once. Plus extended display resolution modes for demanding CAD/CAM applications.

And a network or group on a multiuser system can share all the needed peripheral devices without additional adapters.

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Connect a monitor, a keyboard, a mouse, a modem and a printer —and still have seven slots left over for setting up a network, a multiuser system or a special-purpose workstation.

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Choose from an amazingly wide variety of peripherals.

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Hard disks: fast-access or high-capacity ESDI and SCSI drives, from 71 to 800 megabytes of storage.

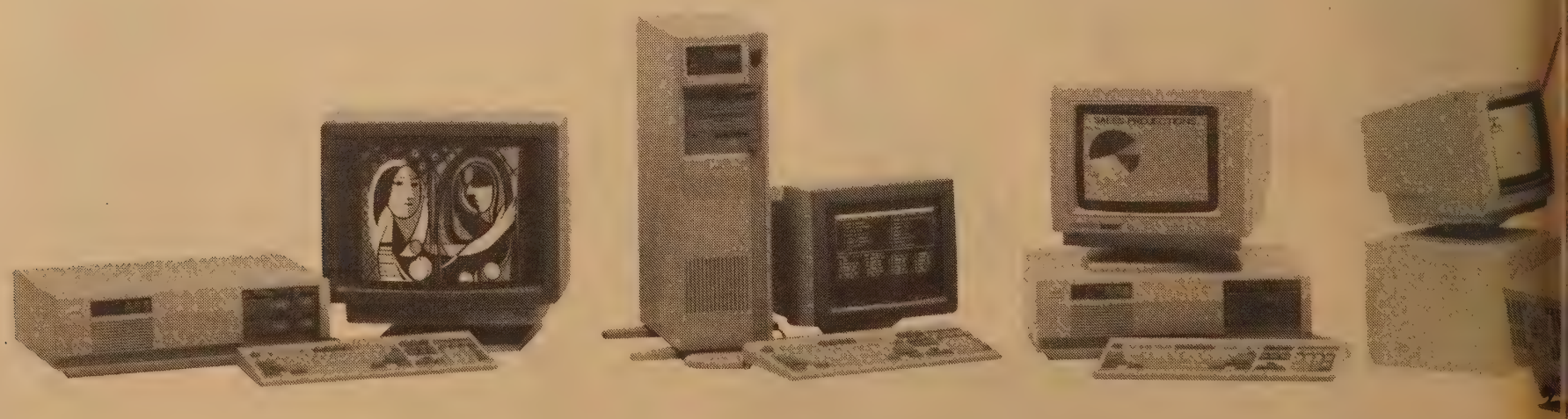
And a range of display monitors as wide as the range of display needs. Low-cost monochrome monitors for multiuser workstations. High-end monitors for desktop publishing or CAD. From 720x348 monochrome resolution to color resolution up to 1024x1024.

You see, we don't limit you by offering a limited variety of system packages.

We're one of the largest suppliers of drives from big names like Seagate, Fujitsu, Toshiba, Micropolis and NEC. And in the display department, nobody distributes more monitors from Samsung, Tatung, NEC and, of course, Mini-Micro.

So whatever your specific requirement, you can choose exactly the components you need to do the job.

The System Micro 286 and 386 are available in both desktop and deskside models.



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rformance System Micro more of everything

More Compatability

Whether it's an operating system or an application, if it's mportant in the micro world today, it runs on your System Micro today.

All the high-performance 386 operating systems. Microsoft OS/2. Windows 386. VM/386. UNIX XENIX.

More Users

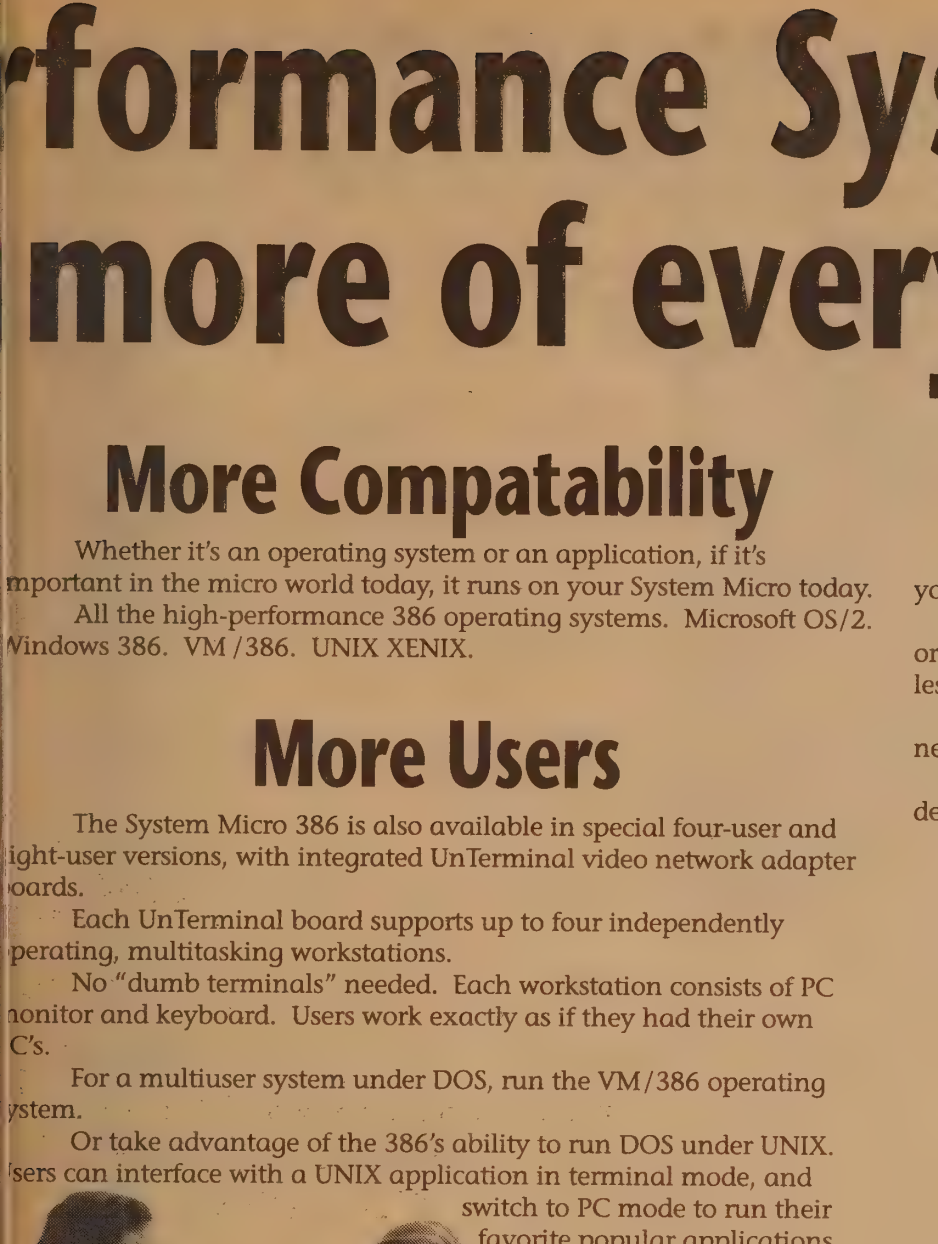
The System Micro 386 is also available in special four-user and ight-user versions, with integrated UnTerminal video network adapter oards.

Each UnTerminal board supports up to four independently perating, multitasking workstations.

No "dumb terminals" needed. Each workstation consists of PC nonitor and keyboard. Users work exactly as if they had their own C's.

For a multiuser system under DOS, run the VM/386 operating ystem.

Or take advantage of the 386's ability to run DOS under UNIX. sers can interface with a UNIX application in terminal mode, and switch to PC mode to run their favorite popular applications.



The Ultra Group Multiuser System is a multi-tasking, graphics system for 2 to 16 users.

More Micro

To make a long story short, you get more microcomputer when you get a System Micro from Mini-Micro.

Whether you buy System Micro 386 or System Micro 286, desktop or deskside, you get more of what you buy a micro for — while paying less of what you buy a micro with.

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For more information—and for the name of the System Micro dealer nearest you—just call 408/434-6859.

System Micro 286 Base System includes:

Harris 80286 CPU
1 Meg Fast RAM
Mini-Micro Baby or Standard AT case w/200 Watt Supply
1.2 Meg floppy drive
1:1 interleave hard/floppy card
Monochrome graphics controller w/parallel port
14" Mini-Micro flat screen amber monochrome monitor
Enhanced 101 keyboard
Made in USA; Fully tested/burned-in
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Introductory prices:

System 286/16 Mhz - $1,099
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System Micro 386/20 EGA Base System includes:

System Micro Intel 386/20 CPU
2 Meg Fast RAM
Onboard 640 x 480 EGA
Mini-Micro Standard AT case w/200 Watt Supply
1.2 Meg floppy drive
1:1 interleave hard/floppy card
14" Mini-Micro EGA monitor
Enhanced 101 keyboard
Made in USA; Fully tested/burned-in
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August 12 System Manager: Using The Operating System. Oakland. DataNet. Call: (415)465-9084.

August 12 System Administration: Managing A Novell Network Class. Oakland. DATAssociates. Call: (415)465-9083.

August 12 De Anza College Computer Mart. Cupertino. De Anza College. Call: (408)996-4581.

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August 13 Computers, Cameras, And Video Swap And Sale. Alameda. Call: (415)522-3336.

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August 14 Javelin Introductory Hands-on Seminar. San Francisco. Mentor Technologies. Call: 1-800-227-5502.

August 14–16 C++ And The Macintosh Course. Techmart, Santa Clara. University of California Extension, Santa Cruz. Call: (408)429-4535.

August 14 Women's SIG Meeting: How To Get Into High Tech Companies Using Your Self Esteem! Cupertino. Women's Special Interest Group. Call: Rita Zokaei, (415)574-8225.

August 15 HyperCard Part II Class. Fort Mason, Building D, San Francisco. Computer Alliance. Call: (415)771-1671.

August 15–18 Project Management: Skills For Success Course. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

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286-12 MHz System	689	704	814	1014	1094	1169	1374
286-16 MHz System	709	724	834	1034	1114	1189	1394
286-20 MHz System	734	749	859	1059	1139	1214	1419
386-16 MHz System	1308	1324	1434	1634	1714	1789	1999
386-20 MHz System	1358	1374	1484	1684	1764	1839	2050
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40 MB .....+305
60 MB .....+370
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- 286-16 0 Wait 315
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- ST-238 210
- ST-238 Kit 260
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- ST-251-1 (40 MB, 28ms) 365
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- ST-4096 (80 Mb, 28ms) 545

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- 150 Watt Power Supply $36
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- Opal 14" Mono Monitor 85
- Samsung Color RGB/EGA 195/310
- Nanao 8060S 545
- Nanao 9070S 940
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- NEC Multisync 3D 620
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- DTC 7280.(1 to 1 MFM) 123
- DTC 7287 (1 to 1, RLL) 145

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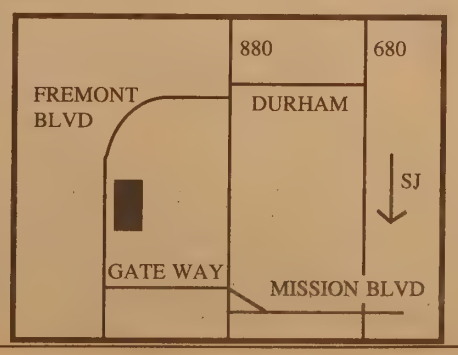

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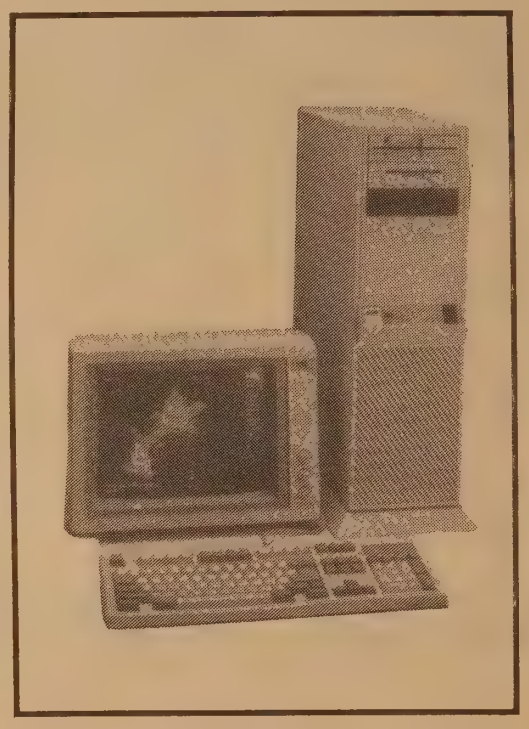
NEAT TURBO 286
12/14/20 MHz 0 WAIT

LANDMARK: 25.9 MHz, SI:23



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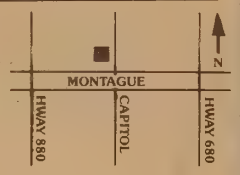

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CALENDAR OF EVENTS *continued*

August 15 Javelin Advanced Hands-on Seminar. San Francisco. Mentor Technologies. Call: 1-800-227-5502.

August 16–18 Finance And Accounting For Technical Managers Course. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

August 16–18 Visualization Workshop For 2-D And 3-D Data. Techmart, Santa Clara. University of California Extension, Santa Cruz. Call: (408)429-4535.

August 17 PageMaker Part I Class. Fort Mason, Building D, San Francisco. Computer Alliance. Call: (415)771-1671.

August 17 PageMaker Part II Class. Fort Mason, Building D, San Francisco. Computer Alliance. Call: (415)771-1671.

August 17 SEF Meeting: Launching A Product Without Financial Resources. Palo Alto. Software Entrepreneurs' Forum. Call: Barbara Cass, (415)854-7219.

August 18 LAN Essentials: Installation & Configuration Class. Oakland. DataNet. Call: (415)465-9084.

August 18 LAN Basics: Network Installation & Configuration Class. Oakland. DATAssociates. Call: (415)465-9083.

August 19 LAN Trouble Shooting & Diagnostics Class. Oakland. DataNet. Call: (415)465-9084.

August 19 Computer Show And Sale. Vallejo. East-West Computer Show. Call: (415)388-8893.

August 19 Shop Till Ya Drop Computer Swap. Oakland. Richard James. Call: 1-800-433-7469.

August 20 Computers, Cameras, And Video Swap And Sale. Alameda. Call: (415)522-3336.

August 20 San Francisco Computer Show, Sale, And Swap. Fort Mason Center. Compu-Shows. Call: (415)931-0423.

August 20 Computer Show And Sale. Sacramento. East-West Computer Show. Call: (415)388-8893.

August 21–25 Intensive Macintosh Programming Classes. Berkeley. Bear River Institute. Call: Mark Hall, (415)644-0555.

August 21–22 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

August 21–25 SCO Forum89. Santa Cruz. University of California, Santa Cruz. Call: (408)425-7222.

August 22 Intermediate WordPerfect 5.0 Class. Oakland. DataNet. Call: (415)465-9084.

August 22 Automating Your Business Accounting

continued

Standard Features of 286/12, 286/16, and 386/16SX includes:

* *Award BIOS*
* *Western Digital Hard Disk/Floppy Controller*
* *Choice of Teac 5.25" 1.2 MB or 3.5" 1.44 MB Floppy Drive*
* *Real-time Clock/Calendar w/Battery Backup*
* *CMOS Memory w/Setup Built-in*
* *Baby AT Case*
* *200 Watt Power Supply (UL Approved)*
* *Enhanced 101-key Keyboard*
* *Supports MS-DOS, OS/2, XENIX, Novell, etc.*

80286 "Turbo AT" Systems

286/12 Mhz Basic System $578

Standard Features plus:

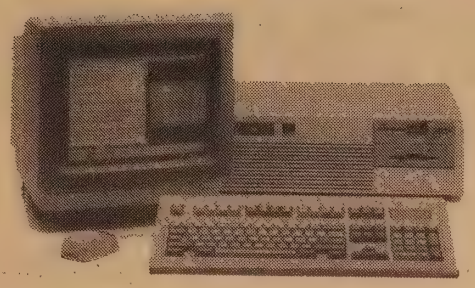
* *12 Mhz 80286-based 0 Wait State Motherboard*
* *512 KB RAM Standard (Expandable to 4 MB)*
* *5-16 Bit & 3-8 Bit Expansion Slots*
* *80287 Math Coprocessor Socket*

286/16 Mhz NEAT Basic System $798

Standard Features plus:

* *16 Mhz 80286-based 0 Wait State Motherboard*
* *640 KB RAM Standard (Expandable to 4 MB)*
* *Chips & Technologies NEAT Chipset*
* *Page interleaved memory controller*
* *LIM EMS 4.0 & Shadow RAM Built-in*
* *5-16 Bit & 2-8 Bit Expansion Slots*
* *80287 Math Coprocessor Socket*

286 Memory Upgrades:
286/12: Add $40 for 640 KB
Add $110 for 1 MB
286/16: Add $90 for 1 MB



386SX Memory Upgrade:
386/16SX: Add $240 for 2 MB

Introducing Microcom's 386SX System

386/16SX Basic System $938

Standard Features plus:

* *16 Mhz 80386SX-based 0 Wait State Motherboard*
* *1 MB RAM Standard (Expandable to 8 MB)*
* *Chips & Technologies Chipset*
* *Page interleaved memory controller*
* *LIM EMS 4.0 & Shadow RAM Built-in*
* *5-16 Bit & 2-8 Bit Expansion Slots*
* *80387SX Math Coprocessor Socket*
* *Also supports UNIX, Windows/386, Desqview, and all 386-Specific Software*

Computer Systems Price Matrix

	No Monitor/Card Included	Mono 720 x 350 1 Color	EGA 640 x 350 16 Colors	VGA 720 x 400 16/256 Colors	SYNC 800 x 600 16/256 Colors
286/12 (512 KB)					
Basic System	$578	$688	$1,073	$1,148	$1,248
w/20 MB Hard Disk (65 ms/MFM)	$778	$888	$1,273	$1,348	$1,448
w/40 MB Hard Disk (39 ms/MFM)	$898	$1,008	$1,393	$1,468	$1,568
w/80 MB Hard Disk (28 ms/MFM)	$1,158	$1,268	$1,653	$1,728	$1,828
286/16 (640 KB)					
Basic System	$798	$908	$1,293	$1,368	$1,468
w/40 MB Hard Disk (39 ms/MFM)	$1,118	$1,228	$1,613	$1,688	$1,788
w/80 MB Hard Disk (28 ms/MFM)	$1,378	$1,488	$1,873	$1,948	$2,048
386/16SX (1 MB)					
Basic System	$938	$1,048	$1,433	$1,508	$1,608
w/40 MB Hard Disk (39 ms/MFM)	$1,258	$1,368	$1,753	$1,828	$1,928
w/66 MB Hard Disk (28 ms/RLL)	$1,378	$1,488	$1,873	$1,948	$2,048
w/80 MB Hard Disk (28 ms/MFM)	$1,518	$1,628	$2,013	$2,088	$2,188
386/20 (1 MB)					
Basic System	$1,238	$1,348	$1,733	$1,808	$1,908
w/40 MB Hard Disk (28 ms/MFM)	$1,583	$1,693	$2,078	$2,153	$2,253
w/66 MB Hard Disk (28 ms/RLL)	$1,648	$1,758	$2,143	$2,218	$2,318
w/80 MB Hard Disk (28 ms/MFM)	$1,818	$1,928	$2,313	$2,388	$2,488
386/25 (1 MB)					
Basic System	$1,468	$1,578	$1,963	$2,038	$2,138
w/40 MB Hard Disk (28 ms/MFM)	$1,813	$1,923	$2,308	$2,383	$2,483
w/66 MB Hard Disk (28 ms/RLL)	$1,878	$1,988	$2,373	$2,448	$2,548
w/80 MB Hard Disk (28 ms/MFM)	$2,048	$2,158	$2,543	$2,618	$2,718

Call for configurations not listed.

Please call for items not listed
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80386 Systems

Standard Features for 386/20 & 386/25 include:

* *1 MB RAM (Expandable to 8 MB)*
* *Chips & Technologies Chipset*
* *Page interleaved memory controller*
* *Phoenix or AMI BIOS*
* *1:1 Hard Disk/Floppy Controller*
* *Choice of Teac 5.25" 1.2 MB or 3.5" 1.44 MB Floppy Drive*
* *1-32 Bit, 5-16 Bit & 2-8 Bit Expansion Slots*
* *CMOS Memory w/Setup Built-in*
* *Real-time Clock/Calendar w/Battery Backup*
* *80287/80387 Math Coprocessor Support*
* *Small Footprint Case*
* *200 Watt Power Supply*
* *Enhanced 101-key Keyboard*
* *Supports MS-DOS, OS/2, XENIX, UNIX, Novell, Windows/386, Desqview and all 386-Specific Software*

386/20 Mhz Basic System $1,238

Standard Features plus:

* *20 Mhz 80386-based 0 Wait State Motherboard*

386/25 Mhz Basic System $1,468

Standard Features plus:

* *25 Mhz 80386-based 0 Wait State Motherboard*
* *Also supports Weitek 1167 Math-Coprocessor*

386 Memory Upgrades:
386/20: Add $240 for 2 MB
386/25: Add $295 for 2 MB

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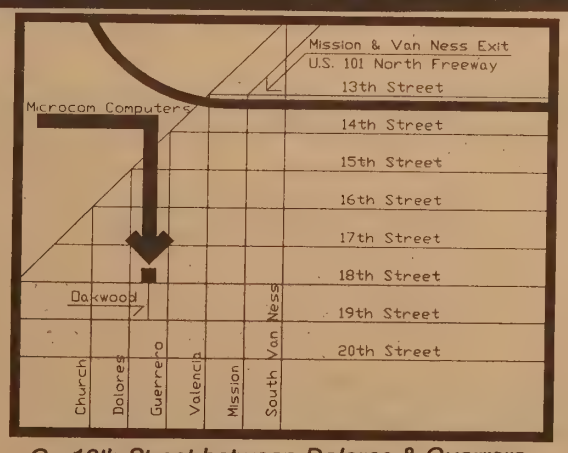

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(1) Passive Hub
(1) RG62 Terminator
(3) 25-foot Coax Cable

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Ne-1000 Compatible Card.....$140
Ne-2000 Compatible Card.....170

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286-12 MHz 4 MB Socket.....210
286-20 MHz 8 MB Socket.....390
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Teac 720K/1.44 MB 3.5".....68/73
Fujitsu 360K/1.2 MB 5 1/4".....58/73
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XT/AT Adapter Control 2 360K/1.44MB Dr.....32
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XT RLL Hard Drive Controller.... 57
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CGA 14".....200
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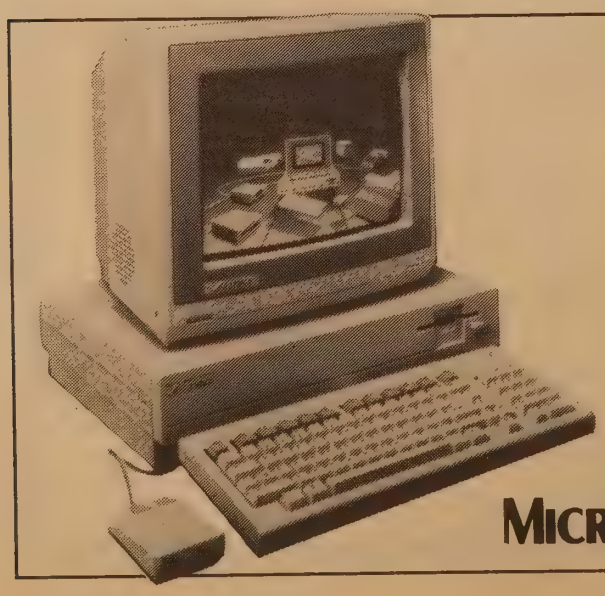

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CALENDAR OF EVENTS *continued*

System: Find Out Where To Begin Seminar. San Francisco. J.C. Lukrich & Co. Call: Beth Markus, (415)864-6770

August 23 Microsoft Word Part II Class. Fort Mason, Building D, San Francisco. Computer Alliance. Call: (415)771-1671.

August 23 DOS Essentials: Using The PC Operating System Class. Oakland. DataNet. Call: (415)465-9084.

August 23–25 Strategic Planning Course. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

August 23–25 Empowering The User: The Design Of Human-Computer Interfaces Course. Santa Cruz. University of California Extension, Santa Cruz. Call: (408)429-4535.

August 24 Introduction To Multi Media Class. Fort Mason, Building D, San Francisco. Computer Alliance. Call: (415)771-1671.

August 25 Career Meeting. San Francisco. Computer Arts Institute. Call: (415)546-5242.

August 25 System Manager: Using The Operating System. Oakland. DataNet. Call: (415)465-9084.

August 25 System Administration: Managing A Novell Network Class. Oakland. DATAssociates. Call: (415)465-9083.

August 26 PageMaker Part I Class. Fort Mason, Building D, San Francisco. Computer Alliance. Call: (415)771-1671.

August 26 Shop Till Ya Drop Computer Swap. San Francisco. Richard James. Call: 1-800-433-7469.

August 27 Computers, Cameras, And Video Swap And Sale. Alameda. Call: (415)522-3336.

August 28–September 1 11th World Computer Congress. San Francisco. American Federation of Information Processing Societies. Call: (303)831-6338.

August 29 Desktop Publishing With WordPerfect 5.0 Class. Oakland. DataNet. Call: (415)465-9084.

August 29 MIDI Maze Tournament. Santa Cruz. ESCAPE. Call: JM @ (408)423-5190, or Thom @ (408)425-1381.

August 29 Automating Your Business Accounting System: Find Out Where To Begin Seminar. San Francisco. J.C. Lukrich & Co. Call: (415)864-6770.

September 2 LAN Essentials: Installation & Configuration Course. Oakland. DataNet. Call: (415)465-9084.

September 3 Computers, Cameras, And Video Swap And Sale. Alameda. Call: (415)522-3336.

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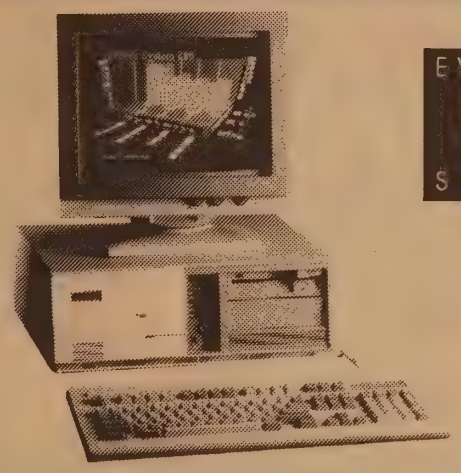

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STEP 286/16	18.0	21.0
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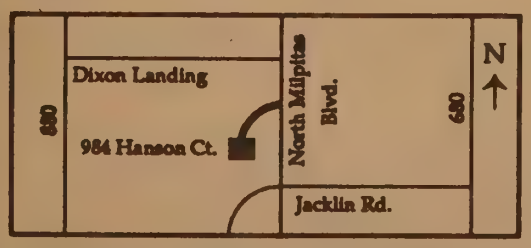

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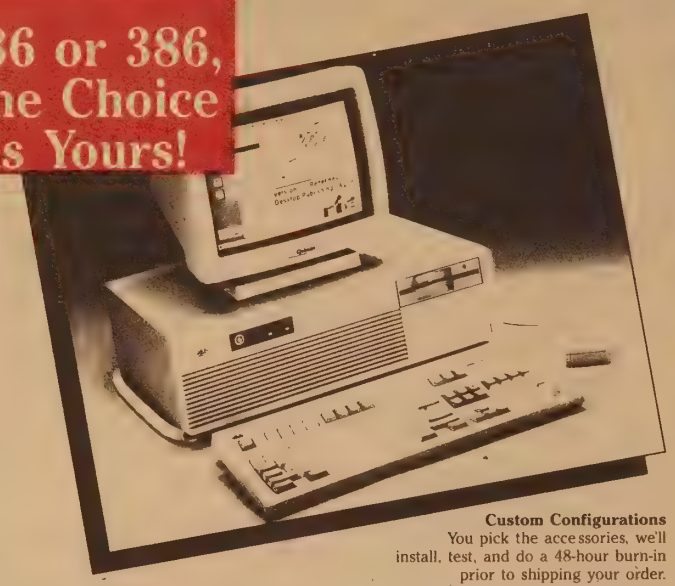

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'386/33MHz System $3,895
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Landmark Speed Rating . . . 58.7
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40MB	$1,495	$1,845	$2,095
286/12	**MGA**	**EGA**	**VGA**
40MB	$1,595	$1,945	$2,195
80MB	$1,795	$2,145	$2,395
286/16	**MGA**	**EGA**	**VGA**
40MB	$1,695	$2,045	$2,295
80MB	$1,895	$2,245	$2,495
286/20	**MGA**	**EGA**	**VGA**
40MB	$1,795	$2,145	$2,395
80MB	$1,995	$2,345	$2,595
120MB RLL	$2,195	$2,545	$2,795
286/25	**MGA**	**EGA**	**VGA**
40MB	$1,895	$2,245	$2,495
80MB	$2,095	$2,445	$2,695
120MB RLL	$2,295	$2,645	$2,895

'386 Monitor and Hard Drive Options

386/16	MGA	EGA	VGA
40MB	$2,195	$2,545	$2,795
80MB	$2,395	$2,745	$2,995
120MB RLL	$2,595	$2,945	$3,195
386/20	**MGA**	**EGA**	**VGA**
40MB	$2,345	$2,695	$2,945
80MB	$2,545	$2,895	$3,145
150MB ESDII	$3,345	$3,695	$3,945
386/25	**MGA**	**EGA**	**VGA**
40MB	$3,495	$3,845	$4,095
80MB	$3,695	$4,045	$4,295
150MB ESDI	$4,495	$4,845	$5,095
320MB ESDI	$5,295	$5,645	$5,895
386/33	**MGA**	**EGA**	**VGA**
40MB	$4,495	$4,845	$5,095
80MB	$4,695	$5,045	$5,295
150MB ESDI	$5,495	$5,845	$6,095
320MB ESDI	$6,295	$6,645	$6,895

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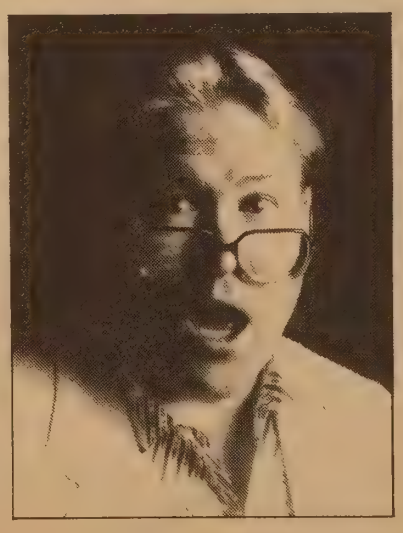

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CALENDAR OF EVENTS *continued*

September 6 DOS Essentials: Using The PC Operating System Class. Oakland. DataNet. Call: (415)465-9084.

September 7–8 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

September 9 System Manager: Using The Novell Operating System Class. Oakland. DataNet. Call: (415)465-9084.

September 9 De Anza College Computer Mart. Cupertino. De Anza College. Call: (408)996-4581.

September 9 Computer Show And Sale. Santa Clara. East-West Computer Show. Call: (415)388-8893.

September 9 Shop Till Ya Drop Computer Shop. San Jose. Richard James. Call: 1-800-433-7469.

September 10 Computer Show And Sale. Santa Clara. East-West Computer Show. Call: (415)388-8893.

September 11–13 1989 Technical Computing And Applications Conference. Santa Clara. Dataquest. Call: (408)437-8245.

September 12–15 Microprocessor Software, Hardware, & Interfacing: Hands-on Introduction. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

September 12–15 Effective Skills For Technical Managers Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

September 12–15 OS/2: A Comprehensive Hands-on Introduction Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

September 12 Automating Your Business Accounting System: Find Out Where To Begin Seminar. San Francisco. J.C. Lukrich & Co. Call: (415)864-6770.

September 13–15 Micro/Mini & Micro/Mainframe Connectivity: Practical Linking Tools & Techniques Course. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

September 13 Automated Accounting Workshop. San Francisco. J.C. Lukrich & Co. Call: Beth Markus, (415)864-6770.

September 15 LAN Essentials: Installation & Configuration Course. Oakland. DataNet. Call: (415)465-9084.

September 16 LAN Trouble Shooting & Diagnostics Class. Oakland. DataNet. Call: (415)465-9084.

September 16 Computer Show And Sale. Vallejo. East-West Computer Show. Call: (415)388-8893.

September 16 Shop Till Ya Drop Computer Swap. Oakland. Richard James. Call: 1-800-433-7469.

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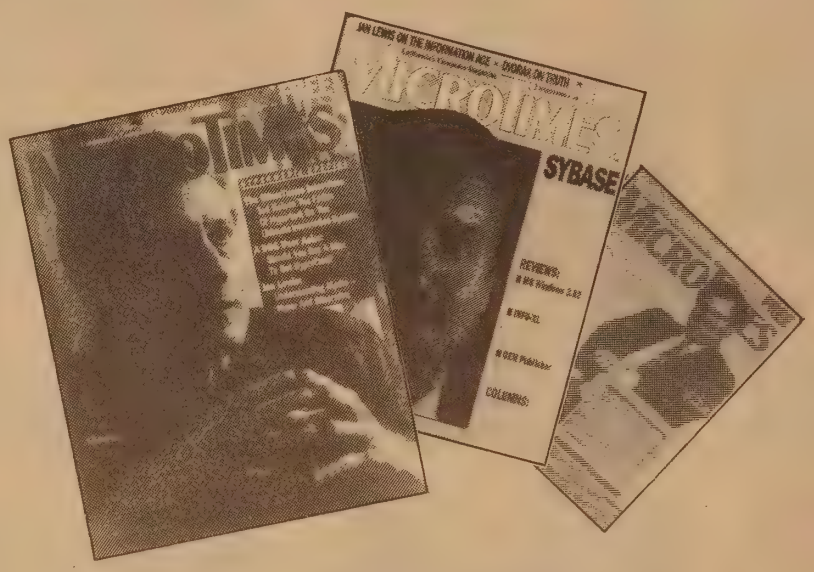
No Other Magazines Were Mentioned!

That's right! In a recent survey, the Copley Newspaper Group asked computer retailers in California, "What Magazines Were Most Popular With Their Customers?"



Here are the results:

1. PC Magazine
2. Byte
3. **MicroTimes**
4. MacUser
5. MacWorld
6. Lotus
7. Infoworld
8. Newsweek
9. Time

That's it. No other magazines were mentioned. Computer hardware and software retailers in California agree—there's only one local magazine their customers depend on. MicroTimes.

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CALENDAR OF EVENTS *continued*

September 18–21 Intensive Macintosh Programming Classes. Berkeley. Bear River Institute. Call: (415)644-0555.

September 18–19 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

September 19–22 PC Networking: Hands-on Workshop. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

September 19–22 Software Quality Assurance & Testing Course. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

September 19 MacWEEK Interface Design Conference. San Francisco. MacWEEK. Call: Cindy Koral, (415)243-3515.

September 19–21 Plant Engineering & Maintenance Show And Conference. Santa Clara. Professional Trade Shows. Call: Rick Musson, (415)581-7003.

September 20 DOS Essentials: Using The PC Operating System Class. Oakland. DataNet. Call: (415)465-9084.

September 20 MDTA Meeting: Expert Systems/ Artificial Intelligence. Walnut Creek. Mount Diablo Technology Association. Call: (415)932-4828.

September 22–24 AppleFest '89. San Francisco. Cambridge Marketing. Call: 1-800-262-FEST.

September 22 System Manager: Using The Novell Operating System Class. Oakland. DataNet. Call: (415)465-9084.

September 23 Computer Show And Sale. Oakland. East-West Computer Show. Call: (415)388-8893.

September 25 CeBIT High-tech Export Workshop. Santa Clara. Hannover Fairs USA. Call: Donna Hyland, (609)987-0092.

September 26–28 Distributed Systems Conference. Santa Clara. Dataquest Incorporated. Call: (408)437-8245.

September 26 Automating Your Accounting System—See What It Can Do For Your Business! San Francisco. J.C. Lukrich & Co. Call: (415)864-6770.

September 27–29 Network Cabling & Wiring Techniques Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

October 2–4 The Expert Systems Symposium. San Francisco. Digital Consulting, Inc. Call: (508)470-3880.

October 3–6 Introduction To Datacomm & Networks Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

October 3 Advanced MS-DOS Seminar. Prolog Financial Systems. Call: (415)441-3117.

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Paradise 16 Bit Plus (800x600)	255
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XT Multi I/O	39
Floppy Controller (360, 720, 1.2, 1.44K)	35
Floppy Controller (360K)	16

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- Dimensions: 7"x16"x13¼"

Includes: 200W Switchable Power Supply

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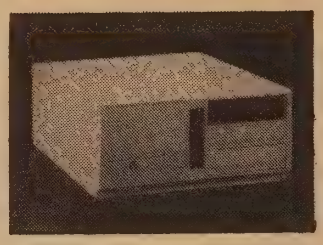

- Slide-in Case for Baby AT or Standard AT
- For three 5¼" & one 3½" FDD or one 5¼" Floppy & one Full Ht Disk Available
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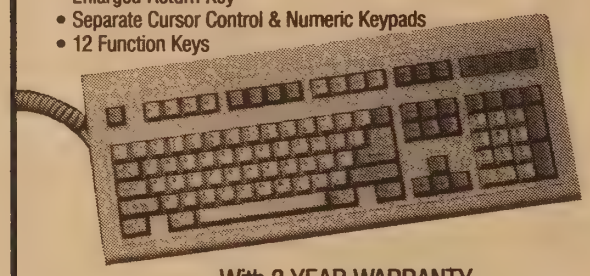

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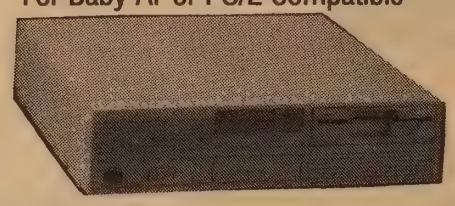

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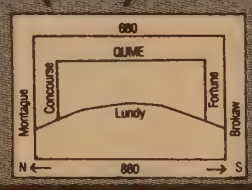

WHAT'S HAPPENING?

Check the MicroTimes Calendar of Events in this issue for computer-related classes, seminars, and shows in your area.

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CALENDAR OF EVENTS *continued*

October 4–6 Software Maintenance Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

October 6 Intermediate WordPerfect Seminar. Prolog Financial Systems. Call: (415)441-3117.

October 11 Expert System Design And Management Seminar. Prolog Financial Systems. Call: (415)441-3117.

October 11–14 The Software Publishers Association Fifty Annual Conference. Montreal, Canada. Software Publishers Association. Call: (202)452-1600.

October 12–13 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

October 13 Fundamentals Of UNIX Seminar. Prolog Financial Systems. Call: (415)441-3117.

October 14 De Anza College Computer Mart. Cupertino. De Anza College. Call: (408)996-4581.

October 17–20 Supercomputers, Hypercubes, & High Performance Architectures Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

October 18 MDTA Meeting: Local Success Stories. Walnut Creek. Mount Diablo Technology Association. Call: (415)932-4828.

October 18 Financial Modeling With Lotus 1-2-3 Seminar. Prolog Financial Systems. Call: (415)441-3117.

October 21 dBASE Made Simple Seminar. Prolog Financial Systems. Call: (415)441-3117.

October 23–24 Time Line 3.0 Workshop. San Francisco. Symantec. Call: (415)898-1919.

October 24–27 CASE: Computer-Aided Software Engineering, Hands-on Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

October 27 Maximizing Microcomputers: DOS Solutions To Performance Needs Seminar. Prolog Financial Systems. Call: (415)441-3117.

As a community service, MicroTimes *lists trade shows, seminars, and other special events in the Calendar of Events free of charge on a space-available basis. To improve the likelihood of your listing's timely inclusion, please make sure we have the necessary information no later than the first of the month, two months before the coverdate of the issue in which you'd like it to appear (i.e., the deadline for the March issue, distributed during February, is January 1). Send to: MicroTimes Calendar of Events, 5951 Canning St., Oakland, CA 94609.*

News about user group meetings and other regularly scheduled activities should be sent to User Group Network at the same address.

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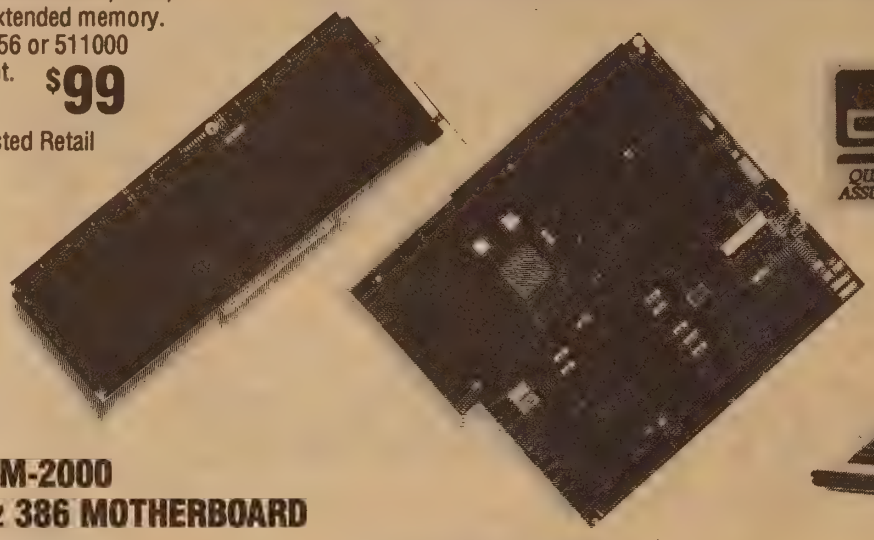

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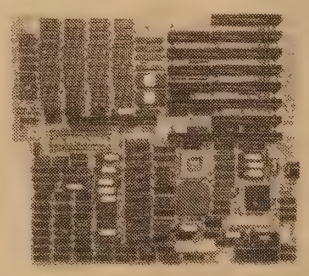

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- Write-back cache design getting higher hit rate, cache size 64KB/256KB selectable
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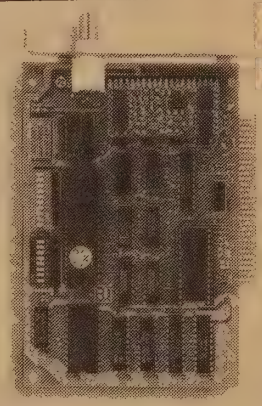
DTK PCI-001 ARCNET CARD



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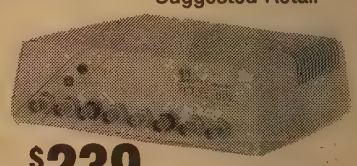
- Fully compatible with ARCNET Active hub
- Supports both star (or tree) and bus topologies
- Use standard BNC connectors, RG-62 A/U coaxial cable
- Maximum transmission length of 2,000 ft.



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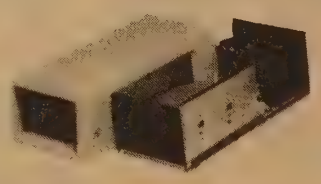

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- 60 W Power Supply

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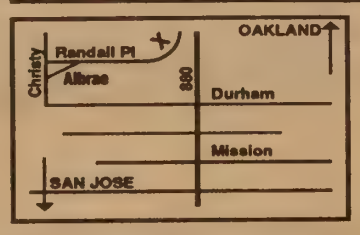

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NEWS AND ANALYSIS

BY PAUL HOFFMAN

IN THE NEWS . . .

IBM Releases First 486 Upgrade 34
AST follows with their own announcement —but is there a market?

Apple Unloads Adobe Stock 36
Apple sells its 16.4% share in Adobe Systems, and announces plans for development of its own PostScript clone.

US Consortium Wants To Produce Own DRAM ...38
US Memories needs $500 million in six months and an exemption from US antitrust laws to begin domestic manufacture of 4 Mb DRAM chips.

Not Alan Kay's Dynabook 40
Dynabook Technologies releases six portable MS-DOS machines using the name Alan Kay popularized—but never trademarked.

Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on USENET (phoffman@well) and MCI Mail (264-3171). He also writes popular microcomputer books.

The 80486 Race Is On, But Is It Worth Running?

The Intel 80486 has made its first commercial appearance in a market where fewer than 15% of PC users have advanced systems based on the 80386.

The new 80486 CPU, announced only a few months ago, offers few new programming features over the current members of the 8086 family. What it does offer, however, is supposedly very fast execution of programs. However, people who have run benchmarks on the few systems that actually have running 80486 CPUs have reported that processor-bound programs only run about 20-40% faster than they do on 33 MHz 80386 systems. Given that IBM's price for an upgrade is nearly $4,000, it is likely that few will want the processor until the price drops significantly.

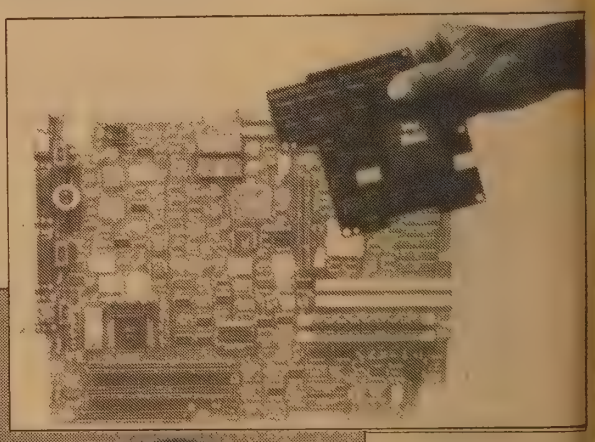
IBM made the first announcement of an 80486-based system with its "PowerPlatform 486/25" upgrade to the PS/2 model 70-A21. The upgrade (basically a swap of the board holding the CPU and ROM chips) is supposed to provide "up to 80 percent" higher performance in business applications and up to three times the performance in numeric-intensive applications, according to IBM. However, no one has shown either of those to be true except in the cases of very small, specialized benchmark programs. According to many people who were allowed to use the upgraded IBM system, none of the programs tested ran faster than 150% of the speed on a 33 MHz 80386.

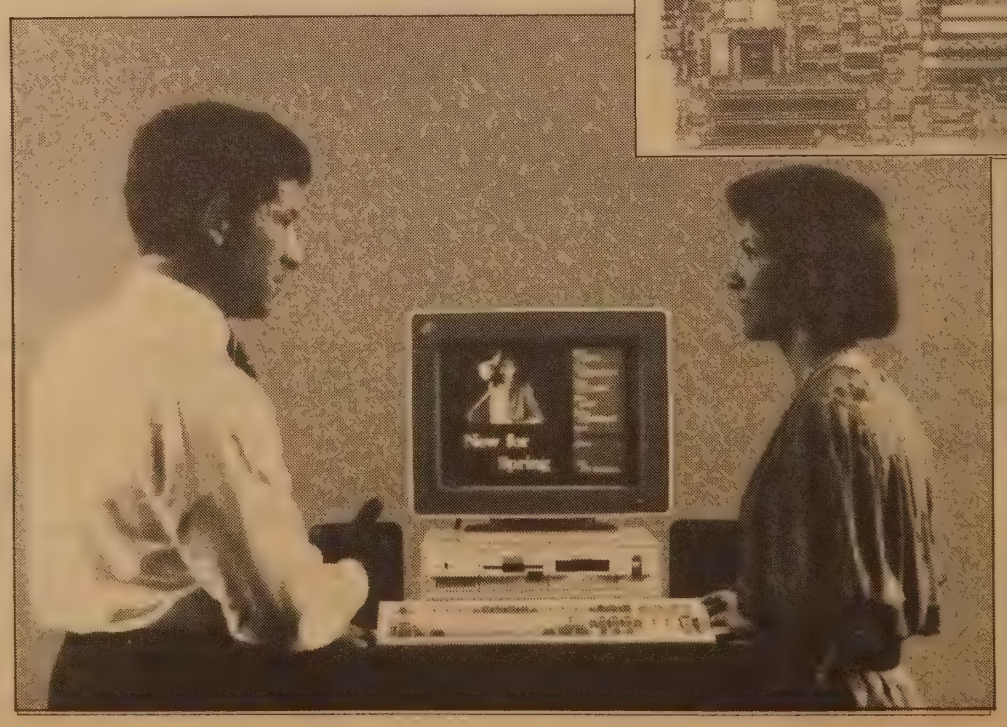
The upgrade will cost $4,000 (with the return of the 80386 CPU) and is supposed to be available late this year, assuming that Intel begins volume shipment of the chip as expected.

Almost immediately after IBM's announcement, AST announced that they too will offer an 80486 upgrade to their 80386-based systems. The AST upgrade, called the Fastboard 486/25, has an additional 64 K of fast cache RAM on the board to further increase the speed. The upgrade for the AST systems costs $3,000. ALR noted that its upgrade would only work in AST systems, since it involves swapping out the CPU board.

AST and IBM are the only major companies who put their 80386 CPUs on boards in anticipation of the 80486. Most other companies put their CPUs directly on the motherboard, essentially preventing a direct upgrade. Many companies are expected to sell 80486 motherboards by the end of this year so that users who are willing to swap the entire motherboard can get the 80486 without buying a new system.

Compaq, IBM's largest rival in this country, said that it would have a new line of computers using the 80486 CPU by the end of the year, possibly before IBM begins shipping its upgrades. Many Taiwanese clone manufacturers also said that they would have high-





IBM announced its first 486-based machines, amid speculation as to the extent of the benefits provided by the new chip.

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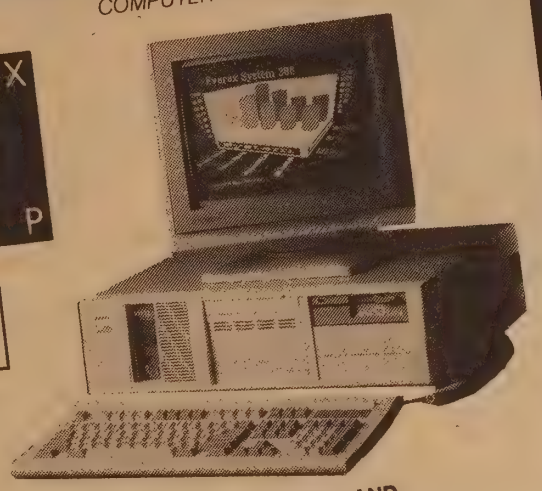

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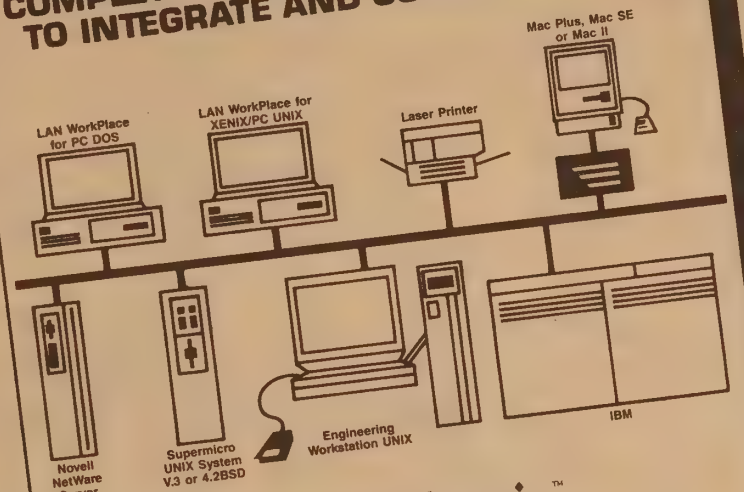
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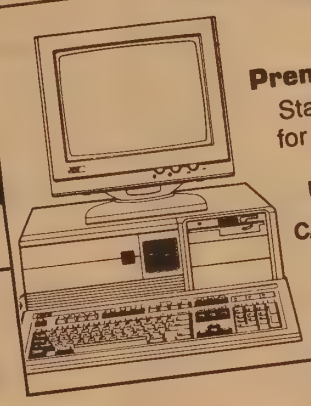

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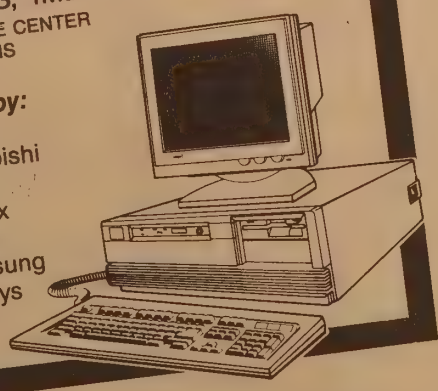

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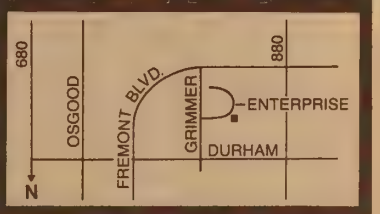

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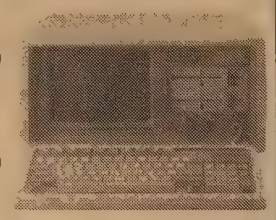

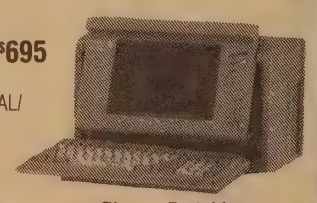

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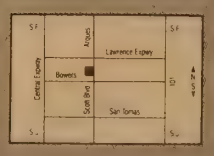

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NEWS AND ANALYSIS

end systems by January or February 1990.

IBM's faster numbers come from the fact that small loops can run from the 80486's on-chip cache, which holds 8 K of data and instructions. However, most real-world applications involve much more code than this, even for tasks such as updating the screen. Thus, the speed increases announced are only available to programs that have been specifically written to keep loops small.

Unfortunately, few commercial applications are optimized this way, and thus the 80486 will be of most use to companies that write their own programs. When the 80386 was announced a few years ago, it was clear that its acceptance was not only based on speed. Intel designed many significant new features for programmers into the 80386. The 80486, on the other hand, has almost no new features relative to the 80386, although it does integrate the math coprocessor into the CPU so that fast math support is not an expensive add-on.

According to the *Microprocessor Report*, the industry newsletter for CPUs, "Intel made no significant changes to the 386 architecture except for six new instructions required for cache support and mulitprocessing functions." Without these new features to bring in a large wave of interest from system-level software designers, the 80486 will have a tough time until the price of an upgrade drops to less than half of what it is now.

Apple Unloads Adobe Stock

When a stock increases its value by 3,500%, most investors would sell. Apple recently announced that it is selling its 16.4% share in Adobe Systems to take the significant profit.

At the same time it announced that, although it would continue its current relationship with Adobe, it is developing its own PostScript clone, thereby depriving Adobe of future royalties. Although Apple commended Adobe for some of the popularity of the Macintosh, it signalled that the relationship has begun to come to a close and that it did not trust Adobe to move PostScript forward in a reasonable fashion for the next few years.

The move was prompted by much more than profit-taking. When Apple announced a few months ago that the next version of the Macintosh system software would include a new printer technology that could clearly (and easily) replace PostScript, it became clear that Adobe's days in the Macintosh world were numbered, although Apple would continue to support PostScript on the printers that it had sold. The new system will incorporate technology that will make the transfer of images from the screen to the printed page much more direct and predictable.

Although Adobe offers that technology in its Display PostScript product, changing all Macintosh software to use Display PostScript would be prohibitive. Instead, Apple is designing the new system so that current programs will work with it.

The most devastating part of the announcement for Adobe was that Apple is developing its own

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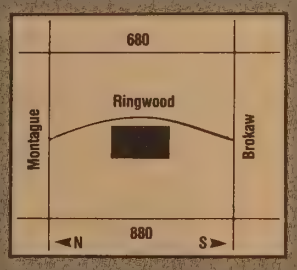

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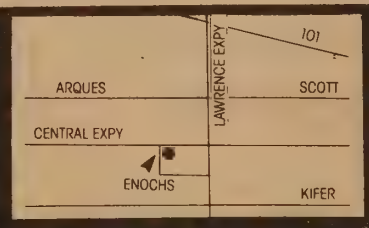

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NEWS AND ANALYSIS

PostScript clone. Although Apple only accounts for about 30% of Adobe's revenue, this was the first announcement from a major manufacturer that clones could be considered as good or better than Adobe's PostScript. There are many PostScript clones available now on the market, and Apple is likely to license one of them or buy out one of the companies that designed them.

Apple's stated goal for developing its own PostScript is "to have the flexibility to determine what additional features and enhancements should be provided in its PostScript language interpreter." This means that once Apple releases its own PostScript, Adobe's standard might be significantly less of a standard than it wants. Apple's extensions might simply take better advantage of the hardware, but they may also include new functions that would allow PostScript to be used in strategic areas to Apple's sole advantage.

Apple promised that it would support the current version of PostScript for its customers, but it is unlikely that it will enhance Adobe's PostScript with any new features.

US Consortium Wants To Produce Own DRAM

Flag-waving isn't only the province of the president and Congress. A group of American companies want to reduce their reliance on Japanese chip manufacturers by creating a consortium to manufacture 4 Mb DRAM chips in the U.S. The group gained immediate support from the electronics industry and even got qualified support from the U.S. companies who currently manufacture DRAMs.

Even though it is clearly a violation of the US antitrust statutes, it is likely that an exception can be made by Congress if the issue is deemed important enough.

However, it is unclear whether the company can get together the massive funding needed for the venture and whether it would be worth the cost. The self-appointed director of the company, Sanford Kane, has about six months to put together a believable business plan and raise approximately $500 million. The company has the initial verbal and minor financial support of Advanced MicroDevices, DEC, Hewlett-Packard, IBM, Intel, LSI Logic, and National Semiconductor.

Even though it is clearly a violation of the US antitrust statutes, it is likely that an exception can be made by Congress if the issue is deemed important enough. Given the popularity of Japan-bashing, this should be a minor hurdle. None of the current US DRAM manufacturers has raised any objections, but no business plan has been presented so it is not clear how US Memories (the name of the new venture) plans to price its products. If it becomes clear that the firm wants to gouge prices to gain a foothold in the market, it is likely that Texas Instruments or

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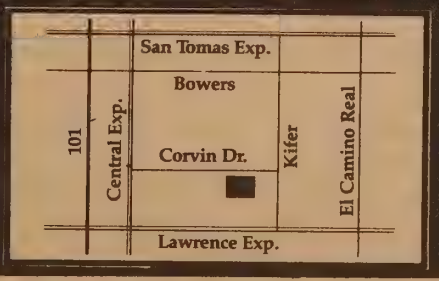

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NEWS AND ANALYSIS

Micron Technologies will cry foul and take the issue to court.

There will be the normal amount of fighting between states about where the plant will be located, even though chip manufacturing uses more toxic solvents and gases than almost any other part of computer manufacturing.

Many questions loom for US Memories:

•Is it safe to rely on IBM for the 4 Mb technology? IBM has always extracted a great cost from its "technology partners" for ideas and processes developed at IBM. An often-forgotten fact is that IBM is the largest producer of DRAM in the world. However, all of its production is for its own use only. IBM has an apparent lead over most of Japan with ramping up 4 Mb production, and it could decide that this would be a good time to start selling to other American companies, especially if it would be perceived as "patriotic" to do so.

•Given that Japan is still considered one of our most important allies, why not just make long-term contracts with Japanese companies for their DRAM production? Clearly, if individual American manufacturers are going to be investing hundreds of millions of dollars in US Memories, that money could also be invested elsewhere. Is the political climate against Japan so bad that some of these manufacturers have not considered simply investing in joint ventures with Japanese companies or simply placing huge advance orders? US Memories would be much more vulnerable to legal and technical chicanery than Japanese sourcesof DRAM.

•What will US Memories do after the 4 Mb DRAM? Even though there have been no objections from other chip manufacturers to the consortium, what happens if it decides to move into other markets in which there are already American suppliers? It is unlikely that the initial business plan will lock the consortium out of future markets, and many American chip manufacturers will have a new giant to worry about five years down the line.

Not Alan Kay's Dynabook

Dynabook Technologies released six portable MS-DOS machines using the name that Alan Kay popularized for his vision of a notebook-sized, low-cost computer that anyone could use.

In the company's defense, president Vinod Khosla said that the name Dynabook was not registered or trademarked so that it was fair game. Given that the name was part of a dream, not a commercial product, the lack of trademark is not surprising. The computers introduced, however, only resemble Kay's often-shared dream in size. Instead of mouse or voice input, the systems have a standard keyboard (without numeric keypad).

Instead of being trivial to use, they are based on MS-DOS. Instead of being inexpensive, a single-floppy system costs $4,700. Given that Dynabook Technologies registered a trademark for the name for the company and its products, no one can use the term for its original purpose without causing confusion, to say nothing of the possibility of incurring the company's legal wrath. ■

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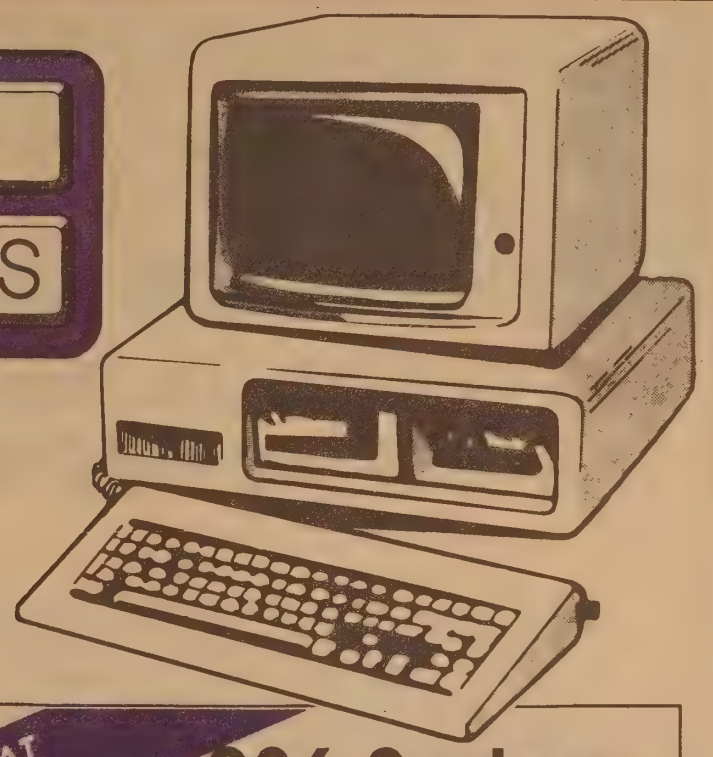

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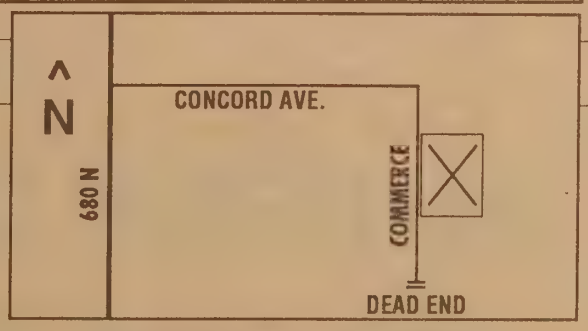

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Forget Batman; Let's Talk Mighty Mouse!

In the late '60s, Doug Engelbart invented the mouse while heading the Human Augmentation Center at Stanford Research Institute. But modern mice still miss two valuable features of Engelbart's hand-carved wooden-cover originals.

Most mechanical mice use two wheels, one rotating horizontally, one vertically. Doug's mice had relatively heavy wheels in direct contact with the desktop. Most modern mice, however, have a ball that rolls on the desk, then two tiny wheels that roll on a ball (an indirect vector?). Therein are lost two useful features of Engelbart's old woody.

Users of the original mice could easily move in exactly horizontal and exactly vertical directions. They just tipped the mouse so one wheel was off the surface; movement was sensed as being in only one direction. No need to pick and click on angle selection or orthogonal direction, nor precisely squirm to remain aligned in densely-packed columns or rows.

Speedy Wheels

Further, a short, vigorous stroke once moved the cursor long distances—the wheels in the old mice were heavy enough to have usable inertia. A user would make a fast, brief motion, quickly lift the mouse, and the wheels would continue to spin for a second, continuing motion in the initial direction without the need for long hand-strokes.

Doug and others from his old SRI project say it was simple to become acclimated to and use such "advanced" features. Ahhh, for the good ol' days.

Old War Story: Sharing Won

Mice remind me: when the Lisa, and then the original Macintosh, came out, with their tantalizing user interface and long-coveted mice, I nonetheless refused to get one. I felt their unnecessary, closed architecture was greedy—Steve Jobs' statement was that Apple "would supply the add-ons". It was also self-destructively limiting—Apple couldn't supply desired options anywhere near fast enough for users' wildly diverse, exploding needs.

One evening in my kitchen, Steve and I debated open architecture versus the Mac's closed system that he preferred. I said the open architecture of the otherwise obsolete IBM PC was essential. It allowed numerous independent innovators and entrepreneurs to offer add-ons and fixes fast enough to meet user demands.

But Steve had "won," making the old Mac an unnecessarily handicapped, tantalizing toy that Apple couldn't expand fast enough for potential users. That decision suppressed Apple's growth and market penetration, and gave Big Blew the powerful advantage of having brigades of independent innovators responding to market needs in a timely manner.

Finally, Sculley et al. decided to make the Mac II an open system (more or less)—and look at how Mac's now taken off! I wuz right [grrrr].

Copyright © 1989 by Jim Warren. All rights reserved. *Jim Warren founded the West Coast Computer Faire, the* Silicon Gulch Gazette *and* Infoworld *newspapers, Video Initiative and the DataCast proposal for broadcast-based paperless electronic newspapers utilizing personal computers. He was the founding host of the PBS* Computer Chronicles *series, founding editor of* Dr. Dobb's Journal, *and founding president of the Microcomputer Industry Trade Association.*

Mouse Religious Wars

Now, you gotta understand: I was enchanted when I first saw the mouse while briefly visiting Engelbart's Human Augmentation project around 1969. I was, again, a covetous-but-untouching observer of mice during visits to X-PARC (Xerox's Palo Alto Research Center), where many of Engelbart's group went when SRI myopically disbanded Doug's project in the mid-70's.

Since I didn't get a Lisa or Mac, I didn't experience their mice except by casual observation. When *AutoCAD* finally offered mouse-ssential power on the PC, I promptly got a mouse from Logitech. A three-button mouse. Of course.

"Of course," because I have three free fingers available after grasping the mouse between thumb and little-finger. And I like maximum utility.

It was only after a year or two of convenient use that I discovered there was religious fervor over the [im]morality of allowing users multiple buttons on a mouse. Only then did I notice that some mice had only one button—appropriate for multiple amputees.

Now I'm finally about to get a (open) Mac IIcx—but am saddened that the Mac Priests have permitted the mere masses only unary use of one of their quinary hands (quinary = five, folks).

Paranoid Product Selection

I went to Logitech, rather than some other mouse maker 'cause I knew some folks there; knew their reputation for having quality gadgets and being particularly equitable and responsive to customers—and I think those much-needed characteristics are especially worth supporting.

I'm getting a Mac IIcx, rather than a II or IIx or SE/30. The II was the first open architecture Mac; I dislike being the field tester for major engineering changes. As I hear it, Apple will provide better upgrade support for the IIcx than for the IIx. Also, I'm not about to squeeze into an old-Mac sized, monochrome SE/30 when I can have the growth opportunities of a IIcx. (For portability, I'll wait for the LapMac.)

More Font Mania

I'm always enchanted by inexpensive text-nology. Digi-Fonts, Inc. have added some flashy options to their LaserJet typefaces. From the beginning, users could size their 260+ softfonts from 3.0 points to 720.0 points (72 points = 1 inch), slant 'em, rotate 'em, flip 'em and reverse 'em—all part of their basic utility.

The open architecture of the IBM PC was essential. It allowed numerous independent innovators and entrepreneurs to offer add-ons and fixes fast enough to meet user demands. Finally Sculley et al. decided to make the Mac II an open system—and look at how Mac's now taken off!

The 2.0 upgrade now allows outlining with lines of any thickness, filling with any of 12 patterns, and shadowing (3D effect) in any direction and depth.

I know of no better softfont deal: it's a nickel less than $90 for the first fix—eight scalable typefaces plus the fontmaking program, and a nickel under $50 for each additional eight-typeface package. These include several hundred non-ASCII characters—everything from "vote boxes" and "check marks" to symbols for math, astrology, OCR, Greek, and Hebrew. Twenty-dollar installers are available for *Ventura*, *PageMaker*, *WordPerfect*, MS *Word*, etc. Digi-Fonts is at (800)242-5665 in Golden, Colorado—gloriously tax-free for non-Coloradian mail orders, run by some of the most reputable folks I've known in our 15-year micro-industry.

After Math

Wonder if value(?)-added resellers are offering cynical astrologers and tabloid publishers programs that produce horrorscopes by randomly choosing among a few thousand admonitions? For example, "Share leisure time with a co-worker." Or, "You will mix the spiritual and romance tonight." Or, "Before advising, think of legalities." Etc.

Mouse inventor Doug Engelbart, upon becoming an adoring grandparent (again), gently quipped: "Babies—Good grief."

Tout Tantalizing Techno Thoughts

Send suggestions to Jim Warren, Realizable Fantasies, 345 Swett Road, Woodside, CA 94062. Published proposals will be attributed to their authors unless anonymity is requested. ■

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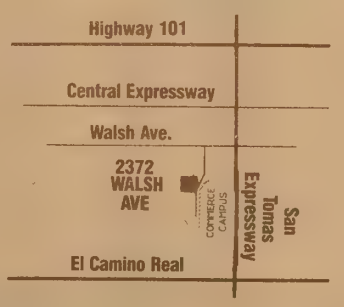

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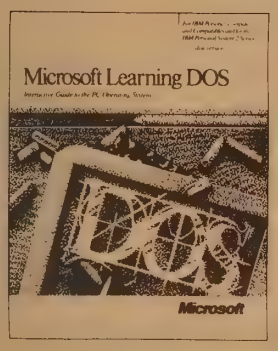

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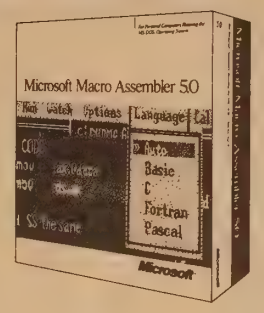

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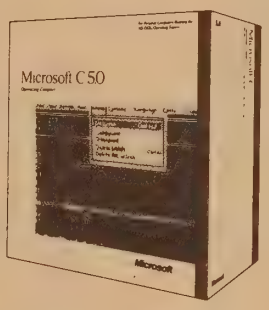

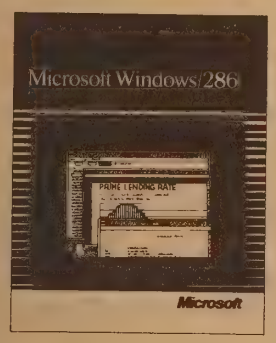

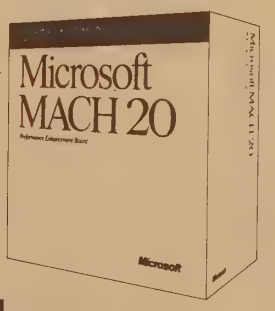

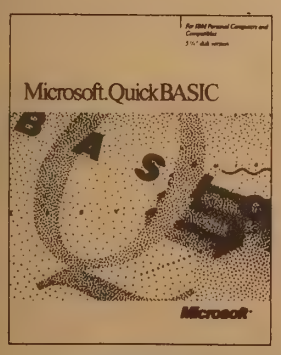

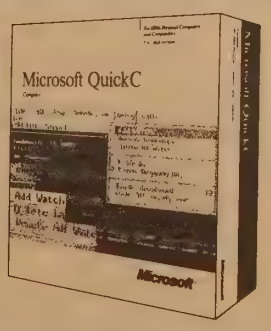

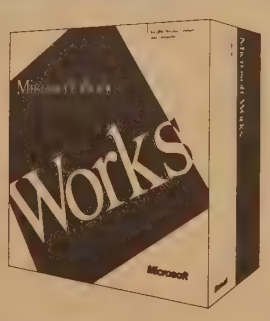

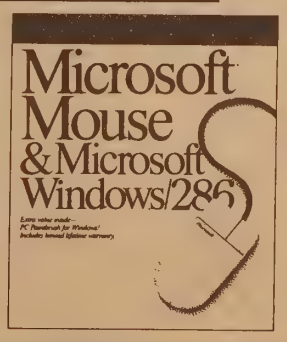

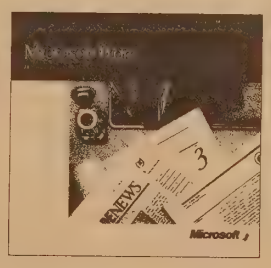

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The NEC UltraLite

Ultra-Portability—At A Price

By L. Brett Glass

The first time I saw the NEC UltraLite, I mistook it for a hardcover book. It's just shy of 8 1/2" wide, a little more than 11" long, and about 1 1/2" thick—by far the smallest fully-functional PC-compatible I've seen yet. And it weighs in at 4.4 lbs, two-thirds the weight of the Toshiba T1000 I usually take with me on the road. At first sight, it looked like the laptop of my dreams—so I arranged to borrow one from NEC and put it through its paces.

Standard Equipment

The UltraLite comes equipped with a 9.32 MHz NEC V-30 CPU, an 8086-compatible that runs about 10-20% faster due to architectural improvements. Its standard configuration includes 640 K of RAM, a 2400 bps Hayes-compatible modem, and serial port. The screen is a 640 X 200 backlit LCD that emulates the IBM CGA.

When the system is turned on, it executes a quick memory test and boots a version of MS-DOS 3.30 from ROM "disk" D:. Then, by default, it runs a visual "shell" called the Microsoft MS-DOS Manager. Inexperienced users will like this menu-driven file browser; as a power user, I preferred the standard DOS prompt and disabled the Manager by changing the AUTOEXEC.BAT file.

From DOS, I verified that all the standard MS-DOS utilities were present, plus a ROMed copy of *LapLink* Version 2. (Traveling Software has since moved on to Version 3 of *LapLink;* Version 2 has some bugs—it once hung both machines as I attempted to build a directory tree of the UltraLite's RAM disk.) However, I was able to get files on and off the UltraLite with relative ease.

The Big Disk

One of the UltraLite's nicest features is its 1 or 2 Mb nonvolatile RAM disk, which NEC insists on calling a "silicon hard disk." When I bought my T1000, I equipped it with the optional 768 K RAM disk and was soon wishing for more; I'd filled the entire space with useful applications and data. The 2 Mb on the UltraLite felt much more comfortable, and I found myself using disk-hungry applications (such as *ThinkTank*), which I hesitate to use on the T1000.

The UltraLite has no internal floppy drive. There simply isn't room in the case, and it would probably exhaust the computer's small battery very quickly. Instead, the UltraLite has a slot for a RAM or ROM card, about the size of four credit cards stacked on top of one another. The 256 K nonvolatile RAM card that came with my unit looked just like a floppy drive to the system; I used it to back up files from the RAM disk. Inserting and removing the card with the machine powered on caused no apparent problems. Programs such as Lotus *1-2-3*, Microsoft *Works*, and *WordPerfect* are available on ROM cards, leaving even more room on the RAM disk.

Unlike the T1000, however, the UltraLite does not let you reallocate some of the RAM disk as LIM/EMS (expanded) memory. If you have a program that really needs EMS (*Turbo Debugger* and *Ready!* are the big ones for me), you must use an EMS emulator and pay a speed penalty for doing so.

Backlit Screen

The UltraLite's 8 1/2" X 4 1/2" "supertwist" LCD is backlit by an electroluminescent panel. The power supply in my unit produced a faint but noticeable whine when the backlight was on. The backlight has two settings and an automatic shutoff feature that extends battery life by extinguishing the backlight when you don't press a key for five minutes. Alas, there's no way to turn the backlight off entirely, or on demand, to save still more power.

I found the screen to be quite readable in a darkened room, but utterly illegible in a brightly lit restaurant or outdoors (even in shade) on a sunny day. There's no provision for plugging in an external CGA monitor or overhead projector adapter.

The display has minor compatibility problems with some programs. In *ThinkTank*, which uses a software-generated cursor while editing text, the cursor didn't disappear when I left the editor. This isn't a fatal flaw, but it was disorienting the first time it happened.

One of the UltraLite's nicest features is its 1 or 2 Mb nonvolatile RAM disk, which allows the comfortable use of disk-hungry applications such as ThinkTank, which I hesitate to use on the T1000.

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Thin Keyboard

The UltraLite's keyboard, a minor miracle of engineering, is what lets NEC make the unit so thin. The short key travel takes a bit of getting used to; once I used the keyboard for a while, though, I began to like the feel. Harder to adapt to was NEC's placement of the Ctrl key in the bottom row, instead of to the left of the "A" key; using *WordStar* on this keyboard proved to be a bit of a challenge.

The cursor control keys on the UltraLite are arranged in an inverted "T" pattern at the lower right—a very convenient arrangement. Not so convenient, however, is the way you access the PgUp, PgDn, Home, and End keys; you must press a small "Fn" key (not easily reachable from the home row) while hitting one of the arrow keys.

You can access most of the usual numeric pad functions by hitting the Fn key and pressing keys in the main section of the keyboard. I ran across one keyboard incompatibility in my tests: for some reason, I was unable to produce the Ctrl-Numeric-5 key sequence that pops up in Living Videotext's *Ready!* I had to reconfigure the program on another machine and copy it over before I could get it to run. Also, Ctrl-NumLock doesn't work. There is a Pause key, but by the time you find it it can be too late.

Power Shortage

The UltraLite's greatest weakness is battery life. I spent about two hours writing this article under battery power; before I was done, the computer gave a loud "beeeeeeeep" and flashed an ominous message: "Power fail has occurred." Sure enough, within 10 minutes, the unit turned off and refused to turn on again until I plugged in the AC adapter. (The "power fail" message persisted for five minutes *after* I plugged the unit into the wall, causing me to check the connection twice.) By contrast, my T1000 runs nearly six hours on battery power, and has about 30 minutes of power left when the "Low Battery" light comes on.

It's reassuring to know, however, that the UltraLite's nonvolatile RAM disk is powered by a separate battery that lasts at least a week, so even if you can't turn the machine on your data is probably OK. And, of course, you can always back up your files to a RAM card.

Accessories

The standard UltraLite doesn't include a parallel port. To use a parallel printer (or some other peripherals, like the Xircom Pocket Ethernet Adapter), you need either a special parallel adapter or the optional external floppy disk drive. The latter is battery-powered and uses 720 K or 1.44 Mb 3.5" disks. There's also a very elegant leather case with room for papers and writing implements; I found it very convenient to pull the UltraLite out of this case and start typing.

The Bottom Line

The basic UltraLite lists for $2,999 with 1 Mb of nonvolatile RAM disk; add another $700 for an additional 1 Mb. The parallel adapter costs $199, and the external floppy/parallel port costs $399; the leather case lists for $129. 256 K RAM cards cost $249. As you can see, this isn't a cheap unit. The T1000 with a 768 K RAM disk, a modem, and a built-in floppy lists for less than half as much.

The following software is available on ROM cards: Lotus *1-2-3* for $495; Lotus *Agenda* for $395; Microsoft *Works* for $149; *WordPerfect* for $495; *XYWrite* at $445; and *Metro Express* at $235.

Would I buy an UltraLite? Personally, I don't think so. I'd be deterred by the short battery life, limited screen visibility, and high price tag. But the machine is elegant, and its problems are not insurmountable. With a little work—and perhaps some advances in the technology—the UltraLite could well become the ultimate laptop we've all been waiting for. ■

Copyright © 1989 by Brett Glass. All rights reserved. *Brett Glass is a freelance programmer, author, hardware designer, and student residing in Palo Alto, California. He was one of the original architects of the IEEE 802.5 Token Ring LAN, and co-authored Living Videotext's* ThinkTank *2.0. He currently hosts the OS/2 Conference on The WELL, a computer conferencing system in Sausalito, California. He can be reached electronically as [72267,3673] on CompuServe, "glass" on BIX, and "lll-winken!well!rogue" on Usenet and the ARPA Internet.*

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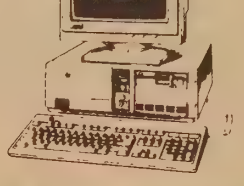

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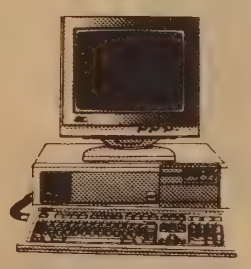

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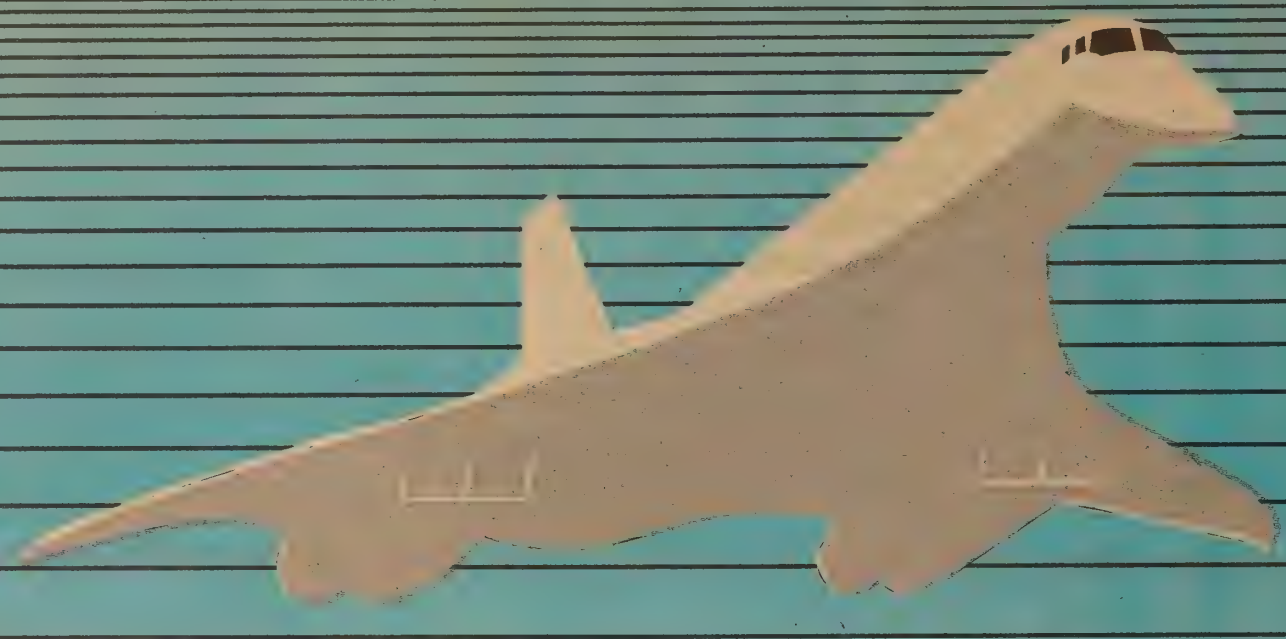

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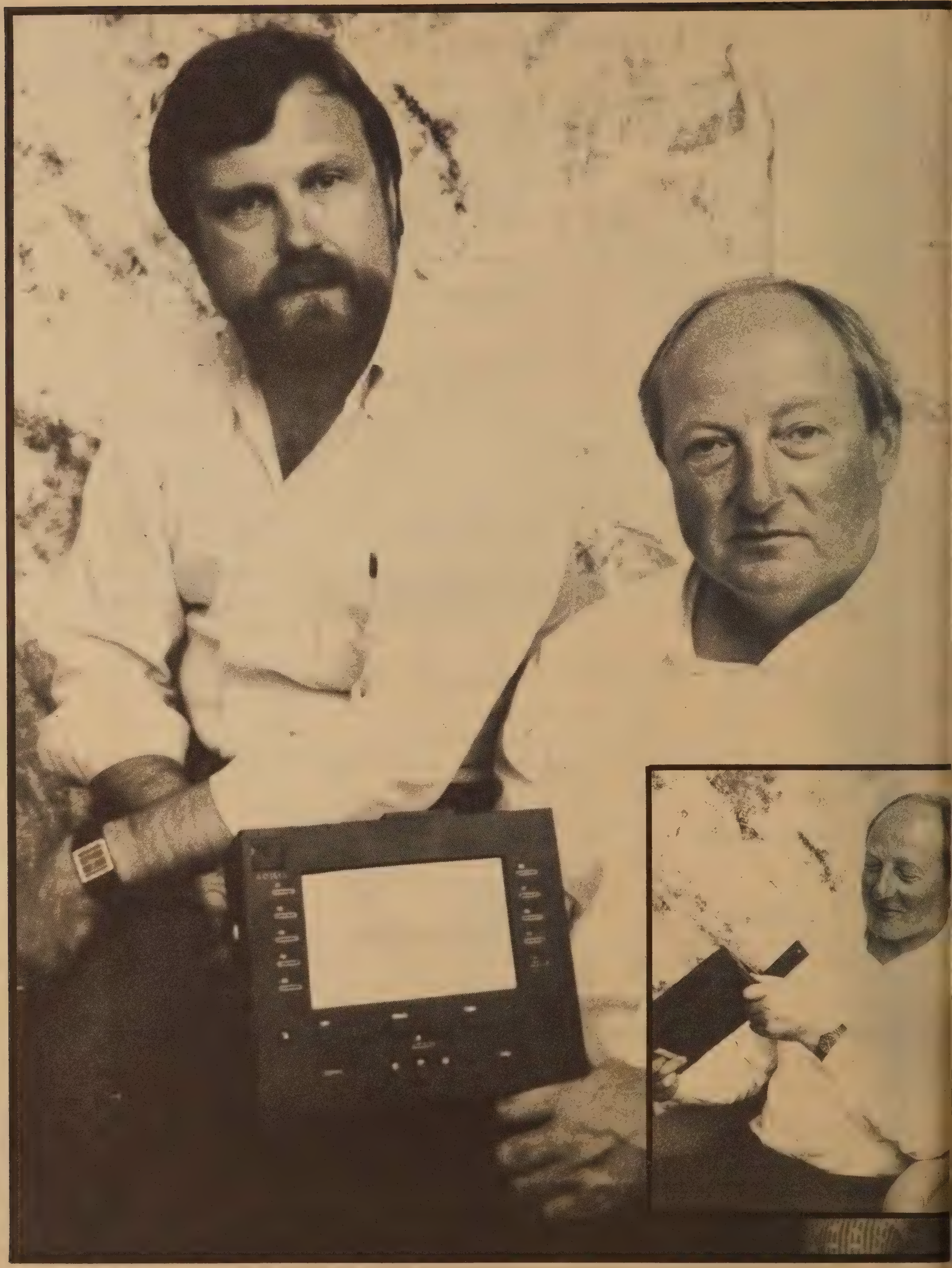

The Handheld Workstation: New Frontiers In Mobile Computing

By Mary Eisenhart

By now everybody's heard, and many have experienced, the benefits of mobile computing with laptop machines and collaborative projects utilizing Local Area Networks.

However, if you belong to the estimated half of the population whose work doesn't take place in the desk-bound world, most of these benefits have been lost on you. Sometimes you have to work in conditions that would dramatically shorten the life of any computer equipment you brought along—temperature extremes, high dust levels, static flying hither and yon. Other times the sheer complexity of setting up a network terrorizes you even as you recognize the eventual benefits.

Enter the Agilis System, due to start shipping in August. The Agilis System consists of a variety of interchangeable modules or "slices," each slightly larger than a videocassette, which snap together to provide exactly the configuration customers need for specialized applications, from manufacturing to disaster relief. Slices include an 8088 CPU, an 80386 CPU, a touchscreen with an interface called ActionPoint that emulates Microsoft mouse operation, battery

Ken Biba (l) and John Ellenby of Agilis, with a 386-based handheld workstation and touchscreen-like "slice" which incorporates touchscreen mouse emulation using the ActionPoint interface. Above, Ellenby shows more modularity: a 20-meg hard disk in a cartridge. The complete configuration weighs about five pounds.

Photos: Michael Jay

packs, and numerous other expansion options.

Aside from their modular design, Agilis products are notable for their unique approach to networking: they support standard networking protocols from Ethernet to AppleTalk, run standard DOS (in the case of the 8088), OS/2 and UNIX (in the case of the 386, which also runs DOS) applications, and do it all via radio, without wires or cables. They also do it *fast,* supporting Ethernet speeds of 10 Mb per second, unheard-of on previous packet radio systems.

The Agilis System is the brainchild of the company's two founders, chief operating officer Ken Biba and chairman, CEO, and president John Ellenby, whose interests converged in the creation of wireless LANs and workstations for what are called "demanding environments." Biba was a co-founder of networking pioneer Sytek (recently acquired by Hughes); Ellenby, a Xerox PARC veteran, is the founder of GRiD Systems, which invented mobile computing and created powerful, rugged laptops that became the darling of the military and the Fortune 500. Both shared an interest in making the benefits of LANs and mobile computing available to those markets whose particular needs hadn't been met by the more mainstream products.

If the main thing you want from portable computing is the ability to move your spreadsheets from home to office, Agilis slices, at prices ranging from $2,000 to $20,000, may be more than you need. However, if you're out in the field in bad weather trying to diagnose and fix a malfunctioning oil well that's costing your company thousands of dollars a minute, Agilis is uniquely suited to your needs. And, with strategic alliances with third parties including 3Com and vertical-market vendors already in place with more to be announced, the range of specialized solutions available to Agilis customers is expanding rapidly.

"I've seen lots of nice products in my time," says Ellenby, beaming paternally at a five-pound 386 setup about the size of a phone book. "Obviously the latest product is the nicest one, but I feel *really* good about this one." Since Ellenby's previous "babies" have included the fabled Xerox Alto and the GRiD Compass, chances are that his fondness for the handheld workstations will become a popular sentiment.

What led you to do this project? What needs are you trying to address?

Ken Biba: We came together from two kinds of different places. John with GRiD, as you know, invented and pioneered mobile computing in general. There are two sets of users: the people who take their office into someone else's office, and the people who don't have an office. The latter have not been well served by the portable computers that have been out.

I came out of the LAN experience discovering that LANs can be invaluable; however, they are still a complex beast, and being able to make them simple and being able to remove some of the complexity by making them wireless was very important.

What I think was natural was that the kind of customers John was looking at, in terms of people who had applications that office machines wouldn't solve, were naturals for having wireless communications.

So we can provide the same kind of tools people have in the office, outside the office; it was natural for us, I think, to join forces, combine our two perspectives, and to build a much more powerful tool together than either of us would have built alone.

One of our premises is the principle of least invention. This is very different from a laptop-looking system, and yet it's very compatible on the inside. So in some sense, you can think about this as a wireless Sun workstation—it's got an Ethernet, it's got graphics display, it's got about a 4-5 MIPS processor inside it, yet it has interfaces to software that want to be the same interface that one would expect to see in one's office.

We've tried to minimize the learning curve so that you don't have to learn something new while providing a new service.

In the particular case of networking, we wanted to build a network product that was not as difficult, not as intimidating, as networking products had been in the past, yet provides the same class of service that our customers need. This connects as a networking unit, it self-configures; when you install the radios it self-configures, and the networking software doesn't have to know about radios. We've kind of hidden that away in the way we've built the product, without having to go off and reinvent yet another operating system, another user interface.

Ken Biba: "LANs can be invaluable; however, they are still a complex beast, and being able to make them simple and being able to remove some of the complexity by making them wireless was very important."

John Ellenby: Modularity has been clearly understood as desirable for a long time in computers, because that's exactly what we've had in mainframes and desktops—you add to it when you need them.

But in portables we came out with things that were all combined, the display with a keyboard—all the choices were already made. And users wanted different kinds of displays, different kinds of keyboards, different amounts of storage, or different or unusual peripherals.

Anybody who didn't want the standard Model T configuration was out of luck.

Biba: And the Model T configuration was largely oriented to people who enter large volumes of numbers or text, and not oriented toward other kinds of applications—not oriented toward CAD applications, not oriented toward analysis applications. It did not make good tools—good tools for certain sets of people.

So you designed the system?

Ellenby: We brought together a team, many of whom had worked together before, and we shared all our ideas and got some customers in, sat around and pushed around some polystyrene blocks, and shared some ideas, got some more ideas, and 18 months ago sat down and designed it. This is the result of 18 months' work.

There are still certain pieces of the marketplace—with respect to all the opportunities in wireless networking and all the opportunities in mobile computing and all the opportunities in networking generally—that require an architecture, a particular physical packaging, that enables people to do what they need to do. We have one customer, for example, who's interested in stacking together ten 386 CPUs. He's going to take the software off of ten 386 Road Runner workstations, which occupy a room somewhat larger than this office, package it into a package this big [indicating size about that of a Mac Plus]—that's ten of these [the 386 CPU slice].

So you can really build any kind of computing system that you want. There's going to be other people building slices for us and with us and selling them directly to their customers and to our customers; those slices will include not just radios, but radio interfaces for other people's cellular radios. They'll include such things as instrumentation, interfaces, mass storage devices, sensors, and so on.

So this is a system that can be added to, a system that can grow, a system that can be used by a major user to meet their changing needs. When they need to insert technology, they can do that. When they need a new kind of display, they've got that.

It lowers their ownership costs, because they only change the pieces that they need, and it very much simplifies their operations, because they don't have to go through a major revolution every three years to buy whole new systems. They buy the pieces that they need, so their lifecycle costs are much lower.

It enables people to build simply, for themselves, custom computers that uniquely suit their needs, their operations, and to build them out of standard components that are available at reasonable cost, but moreover leverage the standards that the industry's developed, principally for the office, so there's lots of software that exists, lots of hardware that exists, the infrastructure's there.

The value-added that we brought is in the notion of networking that this embodies—the wireless network itself, the fact that we use 802.3 or Cheapernet connector modules that can be made up very, very flexibly—part of the system can be at the front of the vehicle, for example, and part in the back, and just have a coaxial cable go between them. And the fact that we have a unique packaging notion, that other people can use.

Biba: Also the intimidation factor: "Who do I talk to to get the wire pulled? How do I get it installed?" Just the intimidation factor of that complexity. You'll notice that in contrast to conventional LANs, it doesn't require any cables to assemble the computer.

If you're familiar with how Ethernet was originally invented, it began as a project in Hawaii called Alohanet, which was essentially to provide peer communications between the Hawaiian islands. They had great difficulty moving wire between islands, so radio was the net system used.

Xerox essentially went ahead and invented Ethernet, took that same notion of wireless communications and put it on a wire, a very strange antenna, rather than just doing radios. So the history of Ethernet and local area networking really begins

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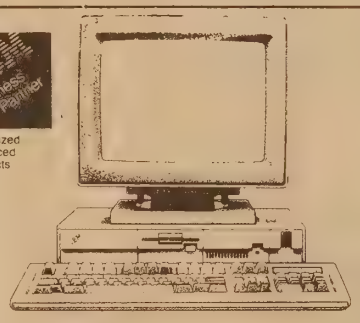

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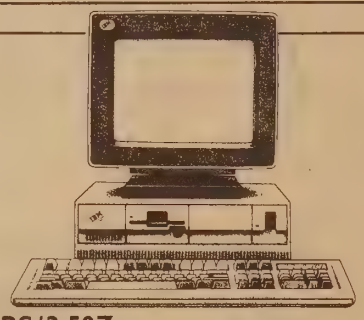

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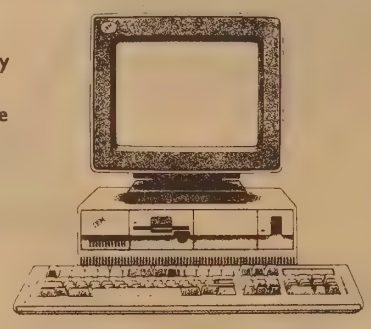

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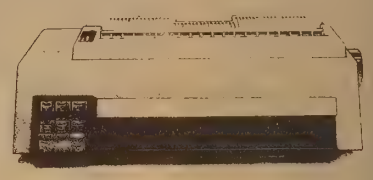

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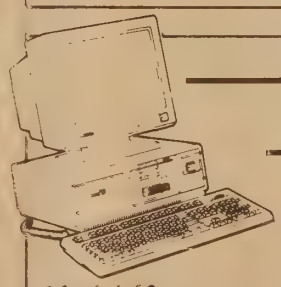

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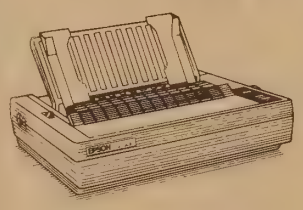

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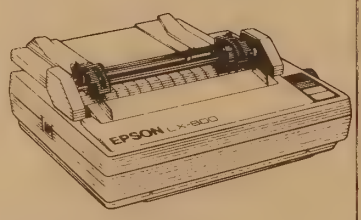

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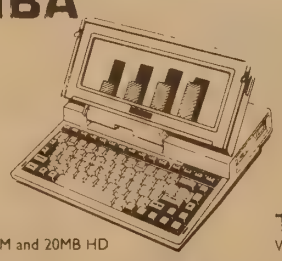

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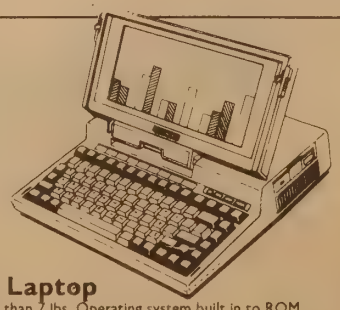

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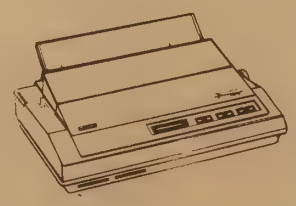

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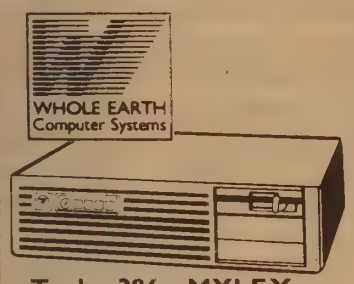

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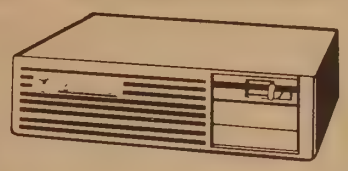

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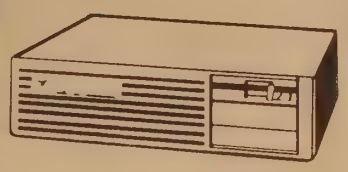

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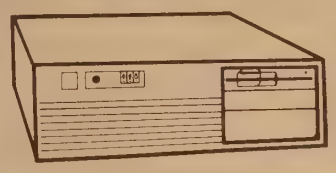

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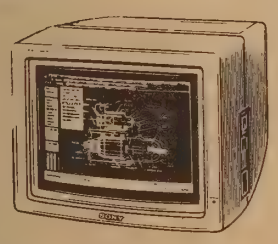

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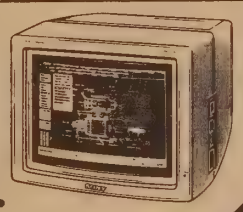

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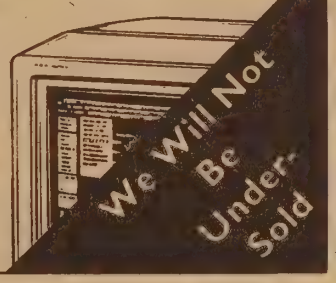

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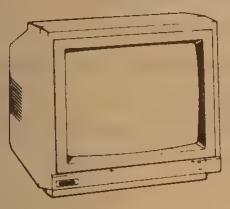

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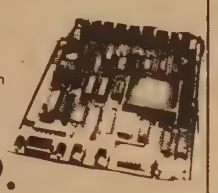

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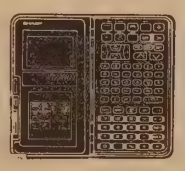

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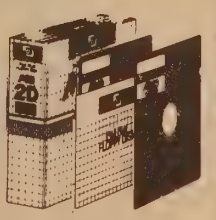

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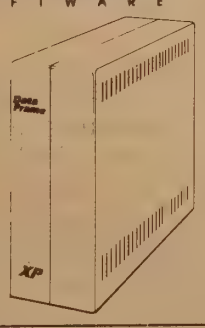

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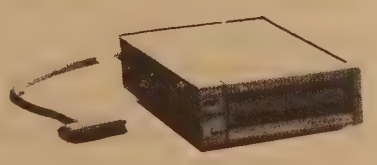

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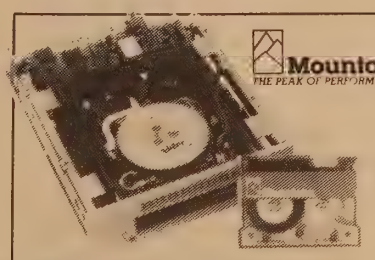

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with radio, goes to cable, and now in a sense we're taking it back to its roots and moving it back into radio.

Are most of the applications that this technology is used for fairly vertical?

Ellenby: I would say they're very vertical—you could say that they're horizontal if you were to say that there's a thing called maintenance systems, which if you think about it is an application.

Desktop publishing is an application. Desktop publishing started out as being very vertical, for the people in the office that made the publications that needed to get out rapidly—that was a specialist group. And then it started that everybody wanted to take their memos and make them into productions.(laughs)

Once the tool becomes available, people start thinking of all kinds of things to do with it.

Right.

I think there's a marketplace that is currently thought of as vertical, which is equipment maintenance. Or there's a marketplace people think of as vertical, which is command and control. In fact, they're horizontal marketplaces of quite large dimensions.

You take the utilities, you take the big van companies, you take all the trucking lines—that's a command and control application. It's not command and control like on the battlefield, in the sense of the Department of Defense, but you want to know where the people are, and you want to be able to have them tell you what they're doing and what they see—what a fireman's seeing, or what we're seeing about maintaining something, and you want to coordinate what they're doing.

Utility companies are interested in where their trucks are, giving the people in the trucks the best information they have about where dangerous chemicals are on the site, or where you go to turn off the gas pipe in a school. Things like that. Command and control is actually a big application—taxis, ambulances, fire trucks, they're all command and control applications.

Then of course, within DOD, command and control is lots of people needing to be coordinated about what to do, where to go, and who they're going to be dealing with, and providing similar information back.

These turn out to be fairly large, generic applications—you think of payroll as being a vertical market, but that turns out to be something everybody uses.

This could be useful to an outbound tech support team.

Sure. They need to be told where to go and what to do, and they need to feed back what they're seeing and what they've done. When you think about it in those terms, in systems terms, it starts to be a very large, generic marketplace. To the extent that they use similar systems, that's what makes it into a large generic market.

There's the engineering marketplace, which is fixing equipment in the field, programming the robots, verifying that the little computers that run the elevator systems, the heating-ventilating systems, are all correct. Fixing aircraft, all those things which are thought of as engineering applications—that's a very big marketplace indeed.

And the third marketplace, or cluster if you like, is industrial automation, which is rather similar to the second one, but different in a sense, and that is the ability to embed small computers, either semipermanently or short-term, or even permanently, that communicate among themselves and the other systems about the status of the plant. It's the ability to very quickly add automation tools, verification tools, the ability to change a production line very quickly, so you get flexibility.

John Ellenby: "The nice thing is that we can use lots of the existing systems. We take things that you can use in the office, and we use them outside and make them useful to people in these demanding environments."

That includes, of course, doing the loading verification and other things that have to do with the logic controllers, PLCs, programmable logic controllers, that people have on production lines and elsewhere. A PLC, for example, if it's shut down in an automotive engine manufacturing line, costs $5,000 a minute. So they're very interested in getting in there quickly and getting it back up.

In these marketplaces there's very high value to the customer, to the public, to have command and control of the utility truck done properly—it doesn't sound as though it's a high value, but when you start to think of what's at stake, a whole community's lost their power, bringing that power back online is important. Preventing explosion is important, and dealing with, occasionally, quite hazardous materials—transformers have PCBs in them and other things.

You can give many examples where good dispatch information is important, good information about what you're going to see when you get there, not having to rely on the local knowledge of the truck driver and the crew. After a major hurricane on Long Island, I personally saw crews from six different groups other than local—they came in from the entire area, so they couldn't possibly rely on local knowledge. When they had the fires up here in the hills, I knew of crews that had come in from as far away as Alaska, so they all needed to be coordinated to deal with a very major event.

If you take the maintenance of equipment, it's a very big marketplace, in part because the equipment's getting more and more complex. You need the ability to take the documentation into the aircraft, or into the major plant that can't be brought back into the test shop that you're running, can't be brought back into the hangar. Increasingly with aircraft they're trying to maintain them as they go through the hubs, because that's the time they're most accessible to the people with the expertise. They're in the hubs like Dallas and New York and Chicago for very short periods, so they try and coordinate it. It's convenience to us and safety to us, when they do it right.

They can actually connect in, coordinating among themselves—they have maintenance engineers, the people that are loading the aircraft, the people that are fueling the aircraft, the people that are putting bags onto the aircraft and freight between aircraft—the availability of that aircraft and its status is known to a large number of people, as though they were on a local area network. They're connected by radios, in this case.

You've got a command and control application there, you've got a logistics and engineering application, and you've got something that's akin to industrial automation because the aircraft also has embedded controllers. So it's a good example of how these things come together.

And the information can come from a remote database that you're accessing, or some of the information can be on board on the unit itself?

Well, think of the people working around that aircraft, or around that situation, as being on a local area network. Think of an office local area network, where one person might be doing payroll, and another person's doing finance, and somebody else is doing projections on a marketing and sales application. Typically local area networks within companies have been used by workgroups that work together and share information; they don't need to work together but they're sharing resources. They may also use a gateway, that goes to a remote database, or a remote service which is a major big computer.

We're talking about exactly the same kinds of applications in terms of the technology, except that it's wireless, and these people are cordless.

So the workgroup of people that couldn't possibly be connected by cable—it's as though they were. So this job, that hitherto is not very well automated—because people, when they're doing this, would have to get out of the airplane and go to a big desktop PC or go to something that's mounted on a truck or walk some distance or drag around with them a lot of documentation—now they're going to see the documentation inside the aircraft, talk to the maintenance databases, and coordinate the other people. This group works together as a team, as though they were on a local area network.

What are the particular requirements of this sort of applications that you wouldn't necessarily get running Lotus on your desktop?

Ellenby: They're often in demanding environments—rain, dust, cold, heat, chemicals, RFI, EMI (electromagnetic interference), radar, arc-welding. Noisy, noisy, nasty, nasty environments.

On the move ergonomics—you may have it bolted in your vehicle, you may have it in your hand. People are making decisions, fairly critical decisions that need a lot of information support, on the move, often in trucks, often in vehicles, sitting on tugs or on aircraft, helicopters, so the equipment should support that different way of making decisions.

You should be able to use it with one hand if necessary. You should be able to operate it by pointing while you're driving a vehicle—"I want to go THERE."

The nice thing is that we can use lots of the existing systems that there are around. We take things that you can use in the office, and we use them outside and make them useful to people in these demanding environ-

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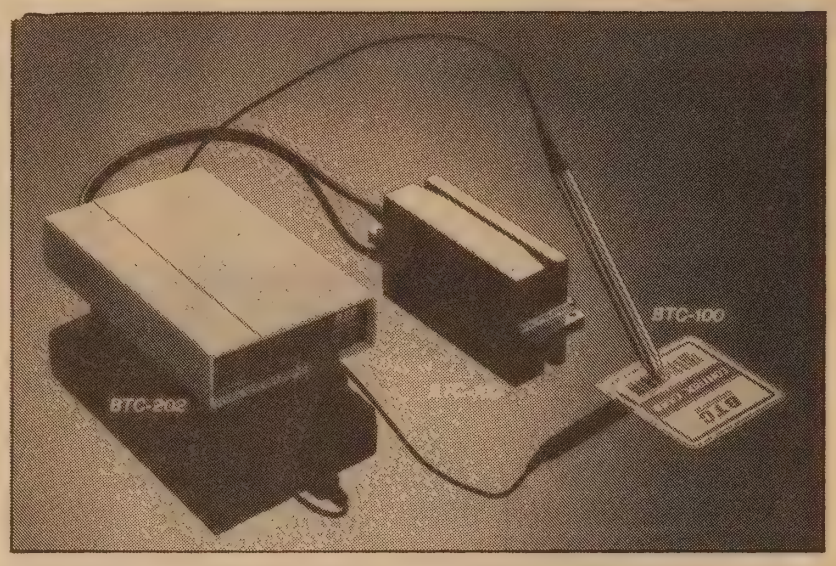

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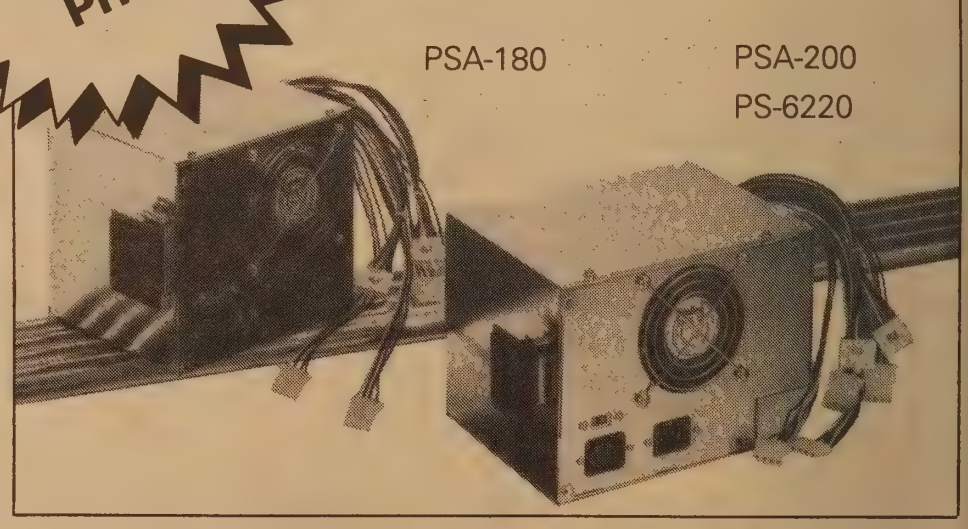

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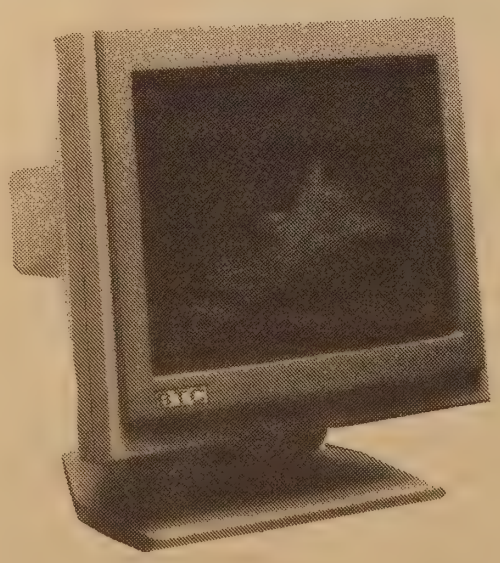

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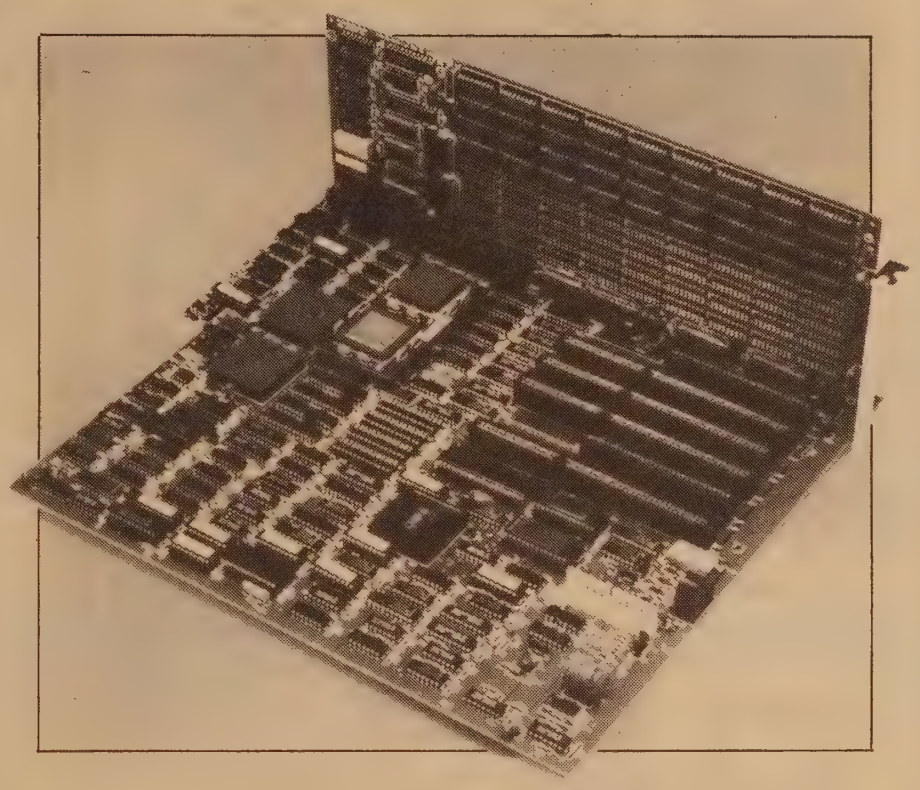

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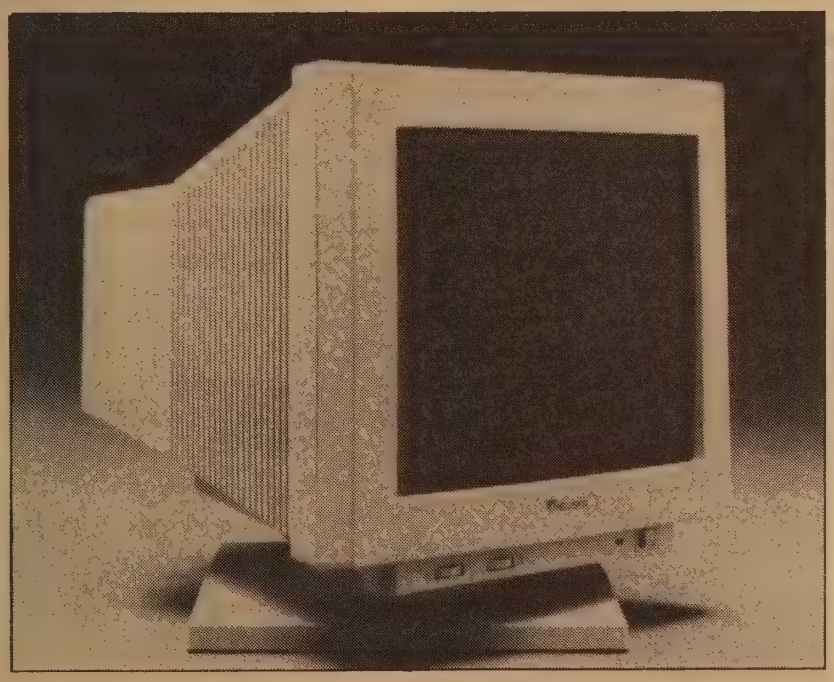

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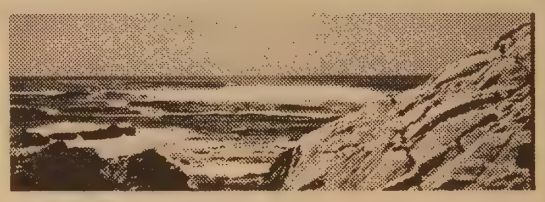

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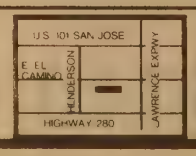

ments. We make it possible to use them on the move. We've got what's called an ActionPoint interface, which is a combination of touchscreen with touchkeys around, that you can use in combination to run mouse-based software without having a surface to run your mouse around. So we can run mouse-based software directly out of the can, or rather shrink-wrapped software directly out of the can, without having to make any changes in the software.

There's a high value placed on mobility, and there's high value placed on having the unit go to where the problem is, as distinct from standing away in the dispatch center or in the fire house or the hangar, so people can actually take it into the situation.

You need lots of things done right in order to work right—one of the things they need done right is that they need to have connectivity of a mobile workgroup at high data rates, with very good error correction, error-handing, and to be able to do that with a radio. That's what we've done. They need to have a lot of computer power because the interface needs to be simple, and the decisions are often complex that they're trying to make. In short, they need hand-held workstations.

Biba: If you have something that wants to be in an office, say a scanner or a laser printer that doesn't like to be outside or doesn't like to be in a rugged environment, put them on a server in the office, and plug in through the network in the standard way and share that peripheral.

This is designed to take explicitly the resources that someone would need, in a high-analysis environment—the half of the US population that doesn't sit in an office—and give them interoperability with the resources and utilities back in the office. And among themselves.

Could you clarify where this technology fits in the packet radio universe?

Biba: We fall under the generic label of packet radio. The difference, I think, is two things.

One is that we build much faster networks than other people have been able to build with local packet radios. The government has done some experiments that are roughly the same performance, but their machines cost 10 to 20 times what these machines cost, and they made ten prototypes of those.

Most packet radios that have been hooked up commercially are very low speed, more like telephone-line modem speeds, rather than true LAN speeds. There really is a difference in the kind of application you do at very high speed as opposed to low speed. If you use a modem over a telephone line, it takes a long time to transfer a file, but over a local area network it happens very fast. So you begin to do things in a different way, you do different kinds of applications. In particular you begin to do things like graphics, you begin to look at documentation online, this kind of thing. So we believe that we are the first local area network packet radio that is both commercial and fast enough to be usable.

The second thing is that because we take advantage of a relatively recent change in the FCC regulations, these are going to be unlicensed to the end user. So you don't have to go to the FCC and ask for a piece of spectrum, like your local TV station does, or if you buy a CB radio, you have to go and ask them to use it.

Ellenby: In order to get a radio for a taxi, you have to apply and get a license from the FCC. With these radios you don't. They set aside the spectrum on condition that you use spread-spectrum techniques, and that it should be very low power.

Biba: It's a combination of techniques that minimize interference with other radios at the same time. It's really designed to build low-power local area distribution of data at high speed.

To make use of it, you have to use a technology that is is often thought to be exotic, the technology called spread spectrum. It's a technology for taking a radio signal and essentially spreading the energy of the radio signal over a wider frequency by adding redundancy and other things. When you do that, you do a couple of things. You make it more interference-resistant, you make it harder to detect, which means inherently more secure, and in environments like this where you use a LAN radio, it simply means that you don't interfere with each other, you don't interfere with your neighbor next door, or they minimize that amount of interference. And that they are robust against multipath (interference inside buildings).

You need all those things to make it practical. Heretofore that technology has only been used in military communications systems or in satellite communications systems, not really in commercial or industrial-type applications. So this is probably one of the first introductions of that technology, at an attractive price point. When you're looking at military or satellite, you're looking at major dollars.

We've taken an approach of trying to take advantage of integration, and kind of look at it from the standpoint of how do you build a garage door opener. That kind of ease of use. (Agilis Corporation, 1101 San Antonio Road, Mountain View, CA 94043, (415)962-9400.) ■

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MAC @ WORK

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Multi-Ad Creator 1.2

A Wish List Of Features In A Specialized Ad Design Program

By LeeAnn Nelson

Anyone who's ever learned more than one software program has had the same fantasy. "If only this application had those tools..." or "If only they could combine this power with that interface, then they'd really have something..."

Well, Multi-Ad Services of Peoria has come close to fulfilling my personal "Frankenstein software" fantasy with *Multi-Ad Creator* 1.2—an advertising design program that mixes some of the best features of *PageMaker*, *Quark XPress*, and *SuperPaint* with some new twists and tools I'd never wished for, but now couldn't live without.

It's an expensive package (close to $1,000) narrowly targeted to those specifically producing print advertising. And while I wouldn't go along with Multi-Ad Services' exuberant claim that this package is "the writer's writer" or "the typesetter's typesetter," I wholeheartedly agree that it might well be "the ad maker's ad maker."

The Environment

While *Multi-Ad Creator* is an object-oriented program like most of the popular design packages, it approaches the creative assignment very differently. Instead of working from templates or defining your page set-up parameters each time you launch the program, your custom ad sizes can be added to the Ad Sizes dialog box (which already includes all standard advertising unit sizes). When you begin an ad, you simply select the appropriate size from your customized menu; you're presented

This "simple" advertisement demonstrates several Multi-Ad Creator graphic and text-handling features. The background is a color EPS file, imported from FreeHand, and the palm tree is PostScript clip art from ClickArt. The headline is one copy block, with two type sizes aligned at the top using the "Offset..." function. An automatic drop shadow was added and then "grouped." The arrows are Zapf Dingbats, horizontally scaled and then rotated, before being duplicated into the one-column, four-row matrix. The starburst was drawn with the Multi-Ad Creator regular polygon tool. The four-color separation was output to negative film on a Linotronic 200.

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PageMaker 3.01	595.00	380.00
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New From GCC...

GCC is introducing two exciting new lines of hard drives called the UltraDrive and the UltraDrive S. The UltraDrive gives the Mac user the power without the sacrifice...the UltraDrive is a high quality drive at a very affordable price. Then for all you Mac users that demand more performance from your hard drive. GCC introduces the UltraDrive S line of high performance drives using the latest in hard drive technology.

GCC has also bundled with the UltraDrive and UltraDrive S Symantic Utilities Mac (SUM). This is not a crippled version, it is a fully functional copy of the program that you can register with Symantic. GCC also has bundled 3.5 megabytes of Shareware and Public Domain software. And to top it off they have upgraded the disk manager software to make it easier to use and give you more control over your hard disk.

GCC is so sure that these drives are going to last...that they back them up with a two year warranty. That means you will be able to sleep at night knowing that your data is safe and that you are covered in the unlikely event that your drive needs service.

Come into **MacOrchard** and check out the new UltraDrive and UltraDrive S from GCC we think you'll be impressed.

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GCC High Performance Internal HD's...	
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with a correctly sized rectangle in a new untitled layout window.

The work area resembles that of *PageMaker*, in that you have the "live area" of the ad rectangle surrounded by a workspace, or "desk area," in which you can experiment with, create, or store elements for your ad. As in *PageMaker*, only elements in the live area will print, but art and type can be stored in the desk area indefinitely without affecting the final ad. This is one of my favorite features of *PageMaker* and has often been part of my "If only it had this..." fantasy regarding *Quark XPress*.

Unlike *PageMaker* or *Quark*, however, *Multi-Ad Creator* is not designed to handle the multiple pages of publication design. The focus here is on advertising design—one ad at a time. But that doesn't mean one "layout" at a time. A great bonus in this program—one that will be appreciated most by experienced ad designers—is that you can create as many layouts as you wish in order to test ideas, try different formatting, or simply show hard-to-please clients a variety.

You create a new layout simply by choosing the New Layout menu option. After you name your new layout (or use the straightforward default names of Layout #2, #3, #4, etc.), the screen flashes and the ad you've already created is immediately duplicated. You can then make changes to one layout or apply changes universally to all layouts. You can move easily between layouts, viewing them one at a time or simultaneously, and can then print one or all layouts. It's a very elegant solution to the troublesome process of copying and pasting, opening new windows, or any of those other back-door solutions we've all devised. It also keeps all the layouts neatly in one document—easy to store, file, and retrieve.

The ad window also contains a status bar in the lower, left corner that's helpful in keeping you informed about any object, but invaluable if you like to re-size type through keyboard commands and, like me, tend to lose track of what size you finally end up with.

Tools And Toys

Again like *PageMaker*, *Multi-Ad Creator* features a floating Tool Palette and separate Colors Palette that are best kept sitting out on your desk area. Unlike *PageMaker*, *Multi-Ad* has 12 rather than 8 tools in the tool box, and those extra tools are some of the best toys I've seen.

In addition to the standard pointer, text, cropping, line, rectangle, round-corner box, and circle tools, *Multi-Ad* offers up a rotation tool, tools to create irregular polygons and starbursts (and other regular polygons), a graphics place-holder tool that will do scaling calculation for you, and a custom border tool that contains 45 pre-designed borders from grape leaves to marble columns.

Double-clicking is a big key to this program—it will get you the dialog or information box related to any object you double-click on, and it will get you to secondary tool boxes when you double-click on a regular tool. For example, you can set the height and width of the line you wish to draw simply by double-clicking the line tool, or define the angle of the corners you wish by double-clicking the rounded-rectangle tool. Double-clicking the starburst tool brings up six other regular polygon shapes (from three to eight sides) you can choose from.

Should you choose to draw a starburst, you can customize it by double-clicking the starburst and then specifying the number of points and the depth of the angles you wish—or you can ask *Multi-Ad* to give you a random selection of angles for that "casual" explosive look.

Other powerful graphic creation and manipulation tools are found among menu choices. Perhaps the most unusual is "Make Matrix..." in which you can select any object and duplicate it to your specified number of rows and columns, creating interesting repetitions, backgrounds, and textures.

Another menu function that's been on my wish list a long time is "Drop Shadow...". This allows you to specify a drop shadow behind any object, in four different orientations with an offset range of 1 to 1000 points. More importantly the "Group" function then allows you to lock that object and its shadow together so they can be moved, duplicated, or rotated as one element.

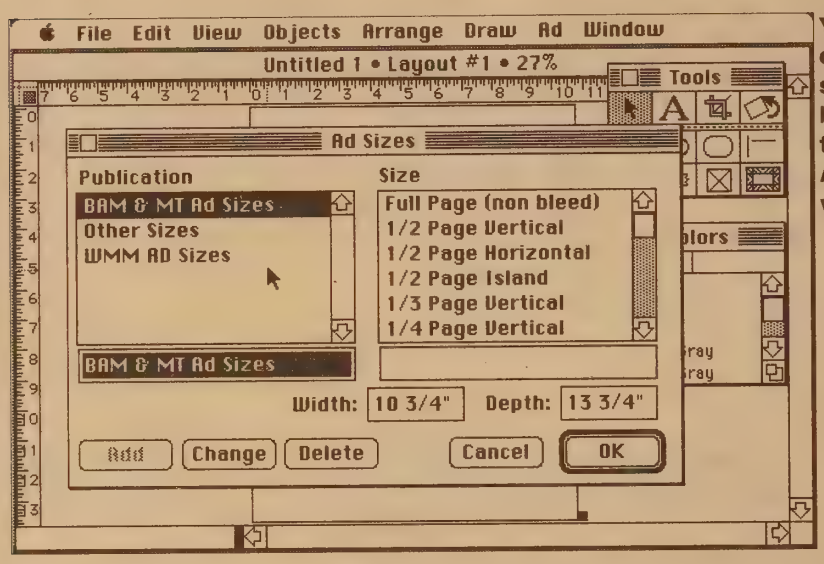
Multi-Ad has a mini-*MacPaint* program built right in, with a lot of the familiar object fills available on the palette. Imported *MacPaint* files appear first in a separate paint window with a rectangular selection marquee, a lasso selection tool, a hand tool, and a Copy To Ad button. This allows you to select or crop only a portion of the graphic to copy to your ad without chopping up the original graphic.

They're not as impressive as some of the other features of this program, but the veteran paste-up artist in me really appreciates the choices under the Arrange menu, which include "Center Horizontal," "Center Vertical," and an "Align Objects" menu with more choices than you would've thought possible. And, in the recent 1.2 upgrade just released in June, these alignment options are accessible through the numeric keypad, making precision control even faster and easier.

Handling Text

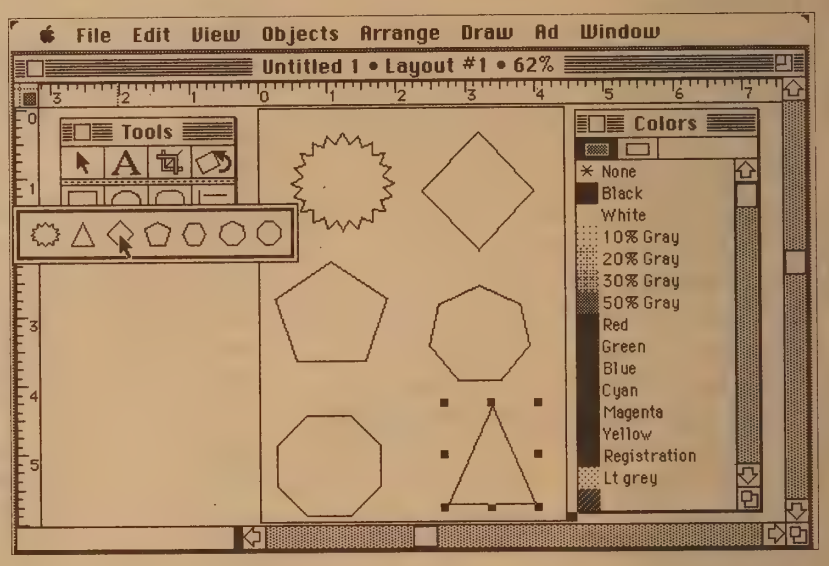
No traditional typesetter is going to agree with the claim that this (or any DTP package) is "The Typesetter's Typesetter." But with one serious exception, this package does offer some of the most sophisticated text-handling features around.

These include kerning to 1/20th of an em space, horizontal scaling from 30–300%, automatic superior, inferior, subscript, and superscript characters or custom positioning of these offset characters



Your custom ad sizes can be added to the Ad Sizes window (l).

Double clicking on the "starburst" tool shows you other regular polygon options (r).



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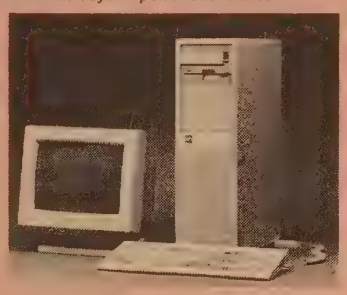
- Keytronics enhanced 101 keyboard
- 2 serial, 1 parallel, 1 game
- 5-drive case w/security lock
- LED indicators
- 200W UL power supply
- One year warranty
- Vertical case add $95



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40MB (40MS)	1800	2129	2140	2225
40MB (28MS)	1835	2164	2170	2255
70MB (28MS)	2035	2365	2370	2455
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- 1.2MB or 1.44 floppy drive
- 1:1 interleave dual HD controller
- OS/2, XENIX, and Novell compatible
- 80387 SXcoprocessor socket
- Shadow RAM cache, NEAT chipset
- Enhanced 101 keyboard
- 2 serial, 1 parallel, 1 game
- 5-drive case w/security lock
- EMS support on-board
- 200W UL power supply
- One year warranty
- Vertical case add $95

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STANDARD SYSTEM	*$1369*	*$1419*	*$1749*	*$1868*
WITH HARD DRIVE				
20MB (65MS)	1589	1639	1969	2088
40MB (40MS)	1729	1779	2109	2228
40MB (28MS)	1799	1859	2189	2299
70MB (28MS)	1949	1999	2329	2448

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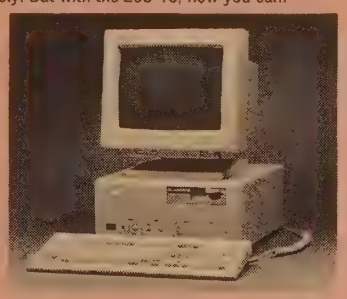
- 80287 coprocessor socket
- Shadow RAM cache, NEAT chipset
- Enhanced 101 keyboard
- 2 serial, 1 parallel, 1 game
- 5-drive case w/security lock
- LED indicators
- 200W UL power supply
- One year warranty
- Vertical case add $95



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STANDARD SYSTEM	*$1079*	*$1399*	*$1529*	*$1629*
WITH HARD DRIVE				
20MB (65MS)	1299	1619	1749	1849
40MB (40MS)	1399	1719	1849	1949
40MB (28MS)	1478	1800	1928	2025
70MB (28MS)	1630	1950	2080	2180
1:1 INTERLEAVE CONTROLLER OPTION: $40.00				

PC&MORE 286-12.5 Desktop System $839

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- OS/2, XENIX, and Novell compatible
- 80287 coprocessor socket
- AMI BIOS w/built-in setup program
- Enhanced 101 keyboard
- 2 serial, 1 parallel, 1 game
- 5-drive case w/security lock
- LED indicators
- 200W UL power supply
- One year warranty
- Vertical case add $95

INCLUDES: • MONITOR • VIDEO CARD	MONO 12" 720x350	EGA 14" 640x350	VGA 14" 640x480	Multisync 14" 800x600
STANDARD SYSTEM	*$839*	*$1219*	*$1390*	*$1475*
WITH HARD DRIVE				
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40MB (40MS)	1185	1559	1730	1815
40MB (28MS)	1240	1620	1790	1875
70MB (28MS)	1389	1769	1940	2025
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- Eight expansion slots
- 8087 coprocessor socket
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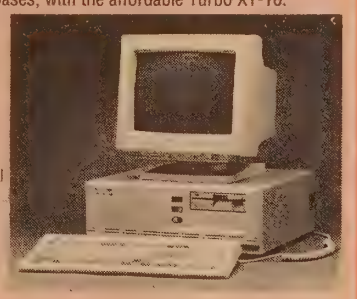
- AT style keyboard
- 1 serial, 1 parallel, 1 game
- Real time clock
- LED indicators
- 150W UL power supply
- One year warranty



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WITH HARD DRIVE			
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40MB (40MS)	859	1249	1339

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25 MHZ 386

Complete ZTS-386 system

Landmark = 33.5 MHz!

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20MHz System $ 1849

* **Uses "Chips & Technology" chipset.**
* **1 MB** RAM, up to 8 MB on motherboard.
* 1.2 MB drive Teac, R/W 360k & 1.2MB.
* **42 MB** hard disk Hitachi, auto park.
* 16-bit HD controller, **1:1** interleave
  120% faster trans-rate, **500** *KB/Sec.*
* Monochrome graphics card.
* Samsung amber 12" monitor.
* Socket for co-processor 80387.
* Tactile feel keyboard, 101 enhanced.

ZTS-386 is based on the enhanced chipset by "Chips & Technology" which is, lately, dominating the PC industry. It offers the following features:

- BIOS and video ROM shadowing. It speeds up the video & BIOS routines about 15%, tested with "PC Journal" program.
- Zero wait state and memory interleaving, separately set & controlled by AMI BIOS, speeds computing up to 30%, Norton test.
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5K volt spike surge protector built into the power supply. (First in the Industry. Patent pending.) 220 Watt, overload protection.

TIPS FROM Z.T.S.

Many 386's run only Microsoft programs under latest Windows-386. ZTS-386 was found as one of the very few computers that proves total compatibility by running other programs under Windows as well (as in Compaq & IBM PS/2). For example using Dbase III under Windows-386!

ZTS-386sx

Landmark = 20.6 Mhz
16 MHz 386sx system
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ZTS-386sx system is designed with the future in mind. It takes advantage of the NEAT chipset from Chips & Technology, which offers you a full capability of the 386 and its superior features. It's a complete 386 system with 16-bit design. It runs all of the Multi-tasking and Multi-user software!

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* **16-bit** HD cntrl, For 2 Flp & 2HD.
* Monochrome graphics card.
* Samsung amber 12" monitor.
* Socket for co-processor **80387sx.**
* Tactile feel keyboard, enhanced style.

ZTS 286-12

12 MHz 286 0 W/S system
Landmark = 16 Mhz!

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* 1.2 MB drive, R/W 360k & 1.2MB.
* **42 MB** Hard Disk Hitachi, **autopark**
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* Monochrome graphics card.
* Samsung 12" amber monitor.
* Tactile feel keyboard, 101 style.

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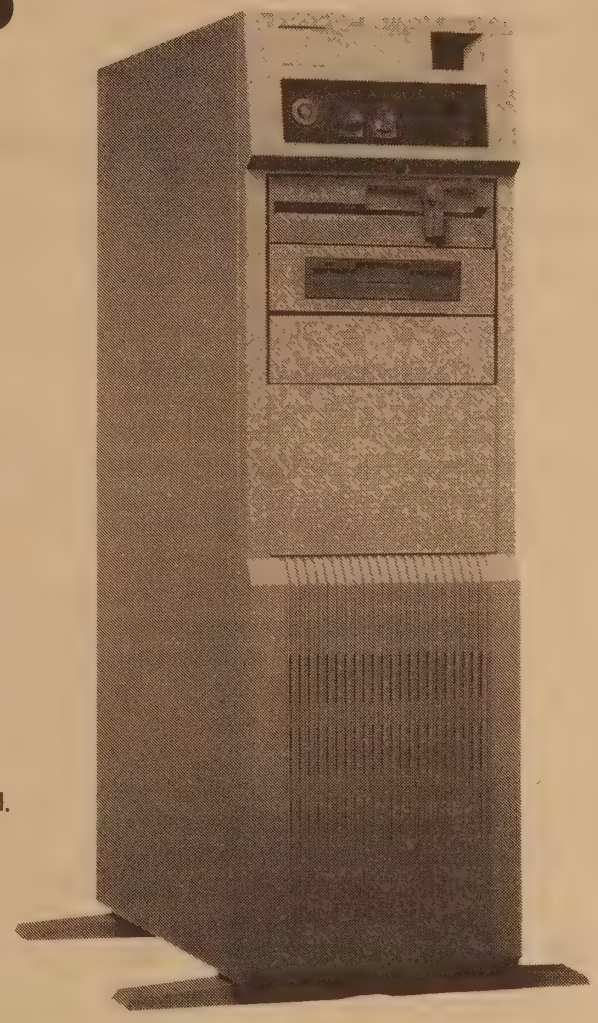

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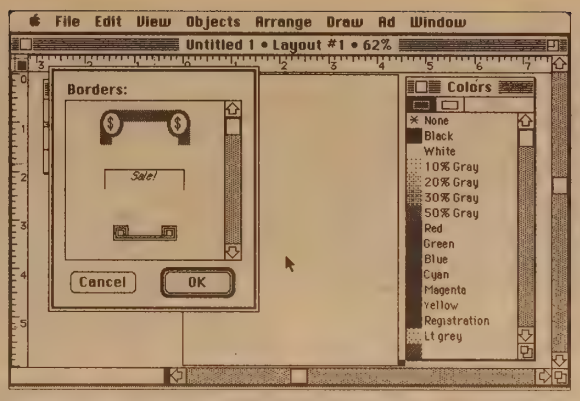
Placing text from a word processing file can be as simple as "Place with cursor," or can be an integral part of the design process, where text is placed in blocks according to your specifications on a secondary Place menu. You have the option to create new blocks after a certain number of paragraphs, or after delimiting characters you've included in your copy. You can decide the size, relative placement, and vertical and horizontal gutter space of your text blocks before you leave the Place menu.

What's missing here is hyphenation—and it is sorely missed. Justified text and text-wraps end up with gaping holes, and ragged right or left text tends to be very uneven. It's a shame to have the luxury of a feature like inside-object text wrapping, without a necessary feature like automatic hyphenation. Two of *Multi-Ad*'s programmers predict this will be added in the future, but probably not soon.

Color Handling

This is an extremely powerful package, that at first seems deceptively simple due to its ease of use. In fact, the User Guide section of the documentation is only 41 pages long—but all the information you need is there, including some of the clearest, simplest instructions for using color that I've read.

Multi-Ad offers four "color" modes—CMYK, RGBK, greys, or patterns. In other words, any object you can draw in the program can be drawn using



Aside from the usual array of straight line and dashed borders, Multi-Ad Creator offers 45 custom designed border styles.

any of these modes. That means even lines and borders can be drawn using intricate patterns from the pattern palette, or in any color you can define using percentages of either cyan, magenta, yellow, and black (CMYK), or red, green, blue and black (RGBK).

Once you've defined a color or used a pattern, it is added to the floating Colors Palette on your desk area. A unique feature of this palette is a set of two icons representing the fill of the object and the outside line of the object, allowing you to assign either fill or border colors and patterns from the same palette. This takes a little getting used to, but it is similar to the approach *SuperPaint* takes to the same problem, and perhaps even a bit more intuitive.

The program will automatically add colors in a colored object you paste from the clipboard to your color list. You may print either spot color or four-color separations, and define your own line-screen and screen angles.

Sounds Good, But...

Several less important aspects of this application sounded great in the promotional material, but have turned out to be a disappointment.

A personal pet peeve is the lack of a unified type specification menu. Type sizes, styles, fonts, and formats are scattered through four pull-down menus. This, of course, makes it easy for the novice designer to browse around and find what he's looking for without having to delve into secondary menus. But when you know all the specifications

The program will automatically add colors in a colored object you paste from the clipboard to your color list.

you want, it's a slow process to get them all applied. The authors feel that using default settings and keyboard commands to access menu choices are the way around this shortcoming, but after a lot of use and experimentation with the "shortcuts" I still miss a unified type spec menu.

Multi-Ad Services had me hooked when they said they "kept large screen users in mind," with most dialog boxes accessed through the keyboard appearing under the cursor—saving a lot of unnecessary mouse movement over expansive screen

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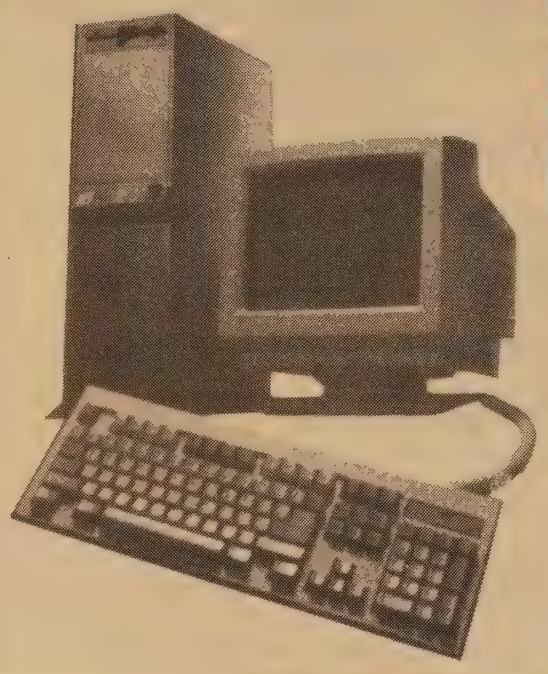

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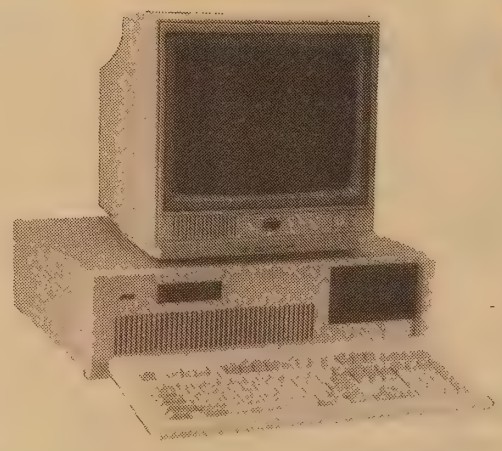

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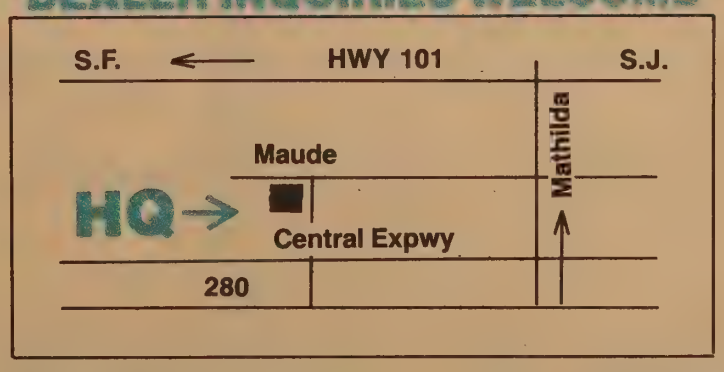

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areas. Sounds great...until you realize that usually your cursor is within the type you want to apply changes to, so you have to pick up the dialog box and drag it out of the way to see what's happening to the type.

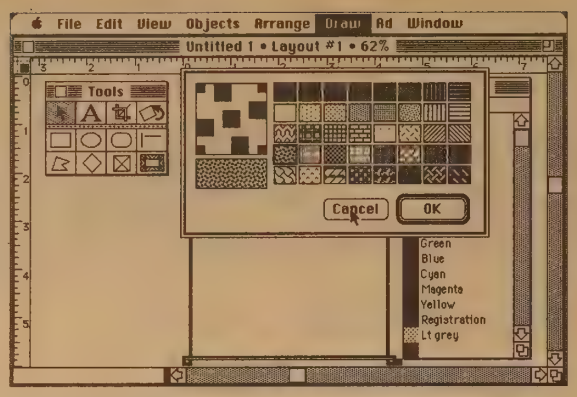
Another feature that sounds better than it performs is the "Suggest..." option under the Ad menu. Suggest creates new layouts, then rearranges the elements into a new design following guidelines you define under the "Set Rules..." option. You can tell the program to give more weight to certain elements, to favor text or graphics, and to suggest placement for selected objects only; you can also tell it how many suggested layouts you'd like to see. Sounds like fun!

The problem, of course, is that computers don't do design, people do design. All computers can do is move the elements around like a housewife rearranging the living room furniture. No "thought" is given to actually communicating information in a logical, cohesive way. But the process is fun to watch, and as the documents point out, Suggest creates new layouts without altering your previous work, so "Suggesting cannot hurt you."

Problems And Fixes

If those are minor annoyances, the program does also have some more serious problems, some of which were corrected with the 1.2 upgrade.

The most expensive and time-consuming problem I encountered turned out to be related to the way this application treats preferences, or defaults.



Unlike either PageMaker or Quark, Multi-Ad Creator offers a variety of MacPaint-like patterns that can be used as lines, borders, or fills.

Unlike most applications, which store this information with each document, *Multi-Ad Creator* stores them in a separate file called Multi-Ad Creator Settings. You can change your preferences and create different settings files by saving them under different names. But be aware that the settings file you use on any particular document must accompany that document to your output service bureau, or the ad you get back may look nothing like you expected. (Even worse, it may look very similar, but with a simple default like fractional character widths turned off instead of on, all of your line breaks can change, and you can actually "lose" the last line of every text block!)

Another problem (which has apparently been resolved in the latest release) is the inexplicable fact that a text block containing black type would not print if it were positioned below a text block containing white type.

A similar, although not as serious (but also not yet corrected) problem concerns the ability of the program to save any finished ad in PICT format for import into a page layout program. This is a very handy feature, but any white type on a dark background is mysteriously lost in this process. In all fairness, this problem also occurs when cutting and pasting white type from a scrapbook, so perhaps it's not a problem within the program itself—although it does limit the usefulness of saving *Multi-Ad* files in PICT format.

I used *Multi-Ad Creator* on several system configurations, including a 1 Mb Mac Plus, a 5 Mb Mac II, and a 4 Mb Mac IIcx, and had an unusual number of system errors occur on each. The program is not as bug-free as *PageMaker* or *Quark*, although the upgrade does seem to have improved this somewhat.

Despite these concerns, I believe this is an invaluable application for any individual or organization faced with the task of creating print advertising design. It's easy to use, but has all the tools and power necessary to do the job quickly and with style.

Now if it just had MS *Word*'s hyphenation and spellchecker. And a freehand drawing tool like *FreeHand* or *Illustrator*. And maybe a... ■

Resources:

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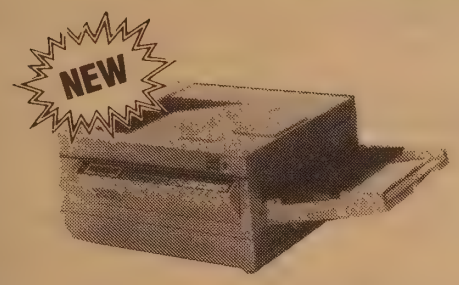

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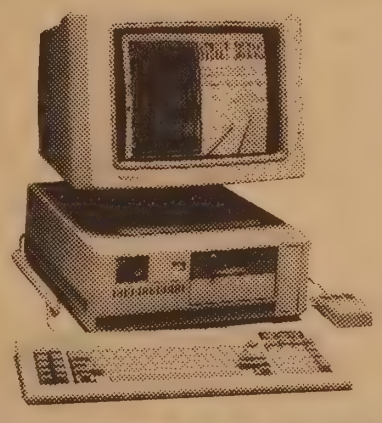

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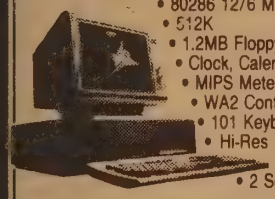

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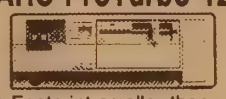

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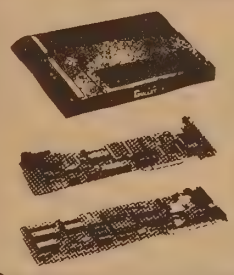

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BMUG

BY DAVID MORGENSTERN

Gassee At BMUG, Hypermedia At Moscone

It's a hard-driving month at BMUG, so we got the lead out and filled up the ByteMobile on Gassee. Then the HyperKids drove across the Bay to the MultiMedia Expo. Is that why they call this the Media generation?

Les Liaisons BMUGeuses

Jean-Louis Gassee, President of Apple Products division of Apple, came and conquered a Thursday night BMUG meeting in early July. He spoke on his hopes for the future of personal computing and answered questions. Answered questions? — Ha!

For 40 minutes Gassee spoke about the needs for better networking, interface requirements, speed, the use of multiple microprocessors, and programming tools. He also called for computer users to politically push for *ISDN* (Integrated Services Digital Network) conversion of the US phone system to improve networking and computer productivity. Then the questions rushed in.

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Gassee is a magnificent Mac Moliere, directing and dominating a crowd. To him, the meeting is a diplomatic, rhetorical exercise. If a subject was too tough, critical, or on an issue that Jean-Louis obviously could not speak about (holy non-disclosure, Byteman!), we took it on the chin.

He would glare at a poor questioning sap,with a professorial *why are you wasting all our time?* expression. Sometimes we'd get a real sourdough French bread shrug and a *you call this a question?* sneer. "I don't know what you're talking about?" Fine, we'll buy it — just leave our egos intact!

Often this was followed by the Apple "don't-worry-be-happy-we're-hard-at-work-on-it-stick-with-us," line. The guy is in charge of the shop. If anyone expected anything more than what was offered, they were being naive.

There were a few good quotes and moments.

• When asked about future Apple products with Static RAM (SRAM is very fast memory, commonly used in high-speed hardware caches), Gassee said, "Start saving." The questioner then replied that the price of this special memory was going down. "I hope so," was Gassee's under-the-breath remark. He was remembering all the trouble Apple had last year purchasing 1 Mb SIMMs at the top of the market. The SRAM will be used in an add-on cache card for future Mac IIs.

• While discussing developments in programming languages, he said, "The most interesting challenge ahead of us is to design better programming tools for system programmers, as well as casual users who want to do some quick cooking with their microcomputer." One short stack with Apple syrup, coming up.

• Gassee danced around Apple's warranty policies, claiming that they hope to improve quality, so that you'll never need to visit the repair shop. Everyone feels that the current 90-day parts and labor policy is way underpowered. There are signs that a coverage change has already been decided. *Macworld* has started a warranty watch until the Apple Ayatollahs release the extended guarantee.

The major Mac magazines often run stories about new Apple hardware at the time of product release. Since the lead time for articles at these rags run three to four months, Apple has to let them see the goodies before everyone else. Perhaps they're pushing the warranty issue now, so they can crow when things change in a month or two.

• There were lots of questions about parallel processing. Gassee no-commented questions on Apple research and university work on Mac parallel computing.

He did say, "You will see more ancillary—dedicated processors on the Mac logic board in the future." When asked about specific areas, like graphics, or sound, he replied he could say "nothing more than has been reported in *MacLeak* [*MacWeek*]."

These complaints must lend authority to the rumors, right? If particular scuttlebutt bothers Jean-Louis, it must be true. Or is it just MacWishful thinking?

Gassee was dressed casually in a knit shirt and slacks. There was no evidence of the black leather he wore in the latest Apple Information Protection Program newspaper. The rag showed Jean-Louis in sunglasses and biker jacket pointing at a chip design rubber-stamped "Confidential." The photographer should have read the accompanying copy. Highly confidential documents are numbered and are labeled "Registered/Restricted."

It's MultiMedia, But Is It Art?

The first MultiMedia/HyperMedia Expo was held in San Francisco in late June. It really was the second show of its kind (last year it was called the HyperExpo and StackMart), but that was such a total bomb that everyone associated with the show has hyperamnesia. As usual, BMUG was there.

The show was held in downtown San Francisco's Moscone Center. The 48 exhibitors filled only one-eighth of the huge hall. The people running this show don't want to admit that new technologies start small and grow. It takes years to fill a hall and draw 40,000 users with bucks to burn.

One of the big stories at the show was the appear-

QUICK TIP

• There are few Mac things worse than when you've spent a half an hour placing icons in a window so they resemble a star, or your beloved's chin, and then accidentally move some by mistake—ruining all your "hard" work. You can get them back into position by dragging the icon(s) up so the cursor arrow passes through the menu bar and then letting go. The icons will snap back to their original places. This won't work if you set their spots by clicking elsewhere on the window or desktop. The icon(s) must stay selected.

QUICK TIP

• Remember that in classic *MacWrite*, as well as *MacWrite II*, the **Enter** key will take you back to where your insertion point is blinking. The insertion point stays where you last typed, until you click the mouse somewhere else in the document. Clicking outside the document, or moving around with the scrollbar, doesn't affect the insertion point.

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ance of IBM —with the biggest booth! They were showing a bunch of new multimedia hardware and software for their OS/2 machines. Their big announcements were the *Audio Visual Connection* (AVC) software and several Micro Channel adapter cards for audio and visual signals. There were also upgrades to IBM's *KnowledgeTool,* a mainframe-based AI program, and *StoryBoard Plus,* a desktop presentation product.

Most of these products were still in pre-production at the Expo, but that didn't slow the interest of the crowd. MS/DOS users always ignore Mac products (they don't want to be contaminated), while Mac users seem a bit more open minded (or smug).

Several BMUGers at the show thought that Apple should invite IBM to every event, since a side-by-side comparison was the best advertisement for the Macintosh. To give a PS/2 machine some of the multimedia capabilities of a Mac II required a pile of boards. Sound and graphics have always been standard on the Mac and now IBM is trying to catch up.

They'll need more than luck—perhaps an attitude transplant. I attended a Blue press briefing with a school teacher who writes for an educational journal. Wearing a BMUG t-shirt and my exhibitor's badge, I was told repeatedly that the meeting was "only for the press." Hey, dudes—be glad someone's coming in to hear the pitch. The IBM marketing folks had better get used to casual dress if they're going to be hanging around multimedia people.

The Apple booth had its own troubles. Some smart cookie thought it would be better to have a suite of rooms away from the action on the floor. Since there was only a small hidden sign pointing the way, most exhibit visitors missed the Apple booth. Does Apple marketing think that they're the only ones on the Yellow Brick Road?

Here are some more hits and misses from the MultiMedia floor.

• The hottest demo at the Expo was *BigTime TV* by HyperPress Publishing Corporation of Foster City, CA. *BigTime TV* adds a set of 20 commands to *HyperCard* to create special windows that can display color video. The demo used scenes from the movie *Ghostbusters* to show interactive learning can be fun, combining video, *HyperCard,* and text.

BigTime TV used the 24-bit color *Personal Vision* RGB image capture card from Orange Micro Inc. The Mass Micro ColorSpace II board was also shown on display around the Expo. Fancy color boards are beautiful to the eye, but are not for users flying coach. The Mac pioneers always pay the price—ask any owner of a 128 K "classic."

• OWL International is the developer of *Guide,* a hypertext product for PCs. They announced a Macintosh reader for PC-based *Guide* documents. *Guide* was the first hypertext program for the Mac before *HyperCard.* This product is useful to companies that have Macs and PCs.

One step further, HyperView Systems showed a product that combined *Guide 2.0* for the Mac with *HyperCard,* Color PICT images, and interactive display of *VideoWorks II* animations. It also will allow control of video disks through the Mass Micro *ColorSpace II* video card.

• Drexel University was showing its multiple windows and color *HyperCard* extensions, *ColorCard.* The price is right at $39.95.

• *Ali Baa Baa and the Forty Winks* is a wonderful hyperfiction by Radical Sheep Productions of Toronto. The designers are two puppeteers from the Muppets. Lots of effective icon animation and fun images.

• The Commodore Amiga 2000HD was on display. They're trying to push this contraption as a "business machine." The box looks cheap—the floppy drive looks ready to fall out of the case. The sales rep didn't think that there was a hypertext program out for the Amiga, until I put him in touch with the San Francisco Amiga User Group—they've got one. I can understand that an Amiga user would know more than a marketing dummy, but a Mac user? Good luck guys.

• An exotic product was a multimedia workstation called the *MocKingbird II* by Warren-Forthought. It combines a Mac IIx with 8 Mb of RAM, two big monitors, 40 Mb Bernoulli cartridge drive, MacRecorder, Apple Scanner, an uninterruptible power supply, and a table to hold them all. The show model included all types of audio and video devices.

The hardware is combined with proprietary software, *CreationStation,* that authors multimedia presentations, training materials, and simulations, as well as database and statistical functions. A package of templates for heavy duty industrial training are thrown into the bundle. The shell software, *Forthought,* is written in the Forth language. The scripts that controlled the buttons on the screen were in itsy-bitsy type under each object—it looked funky. The package is **only** $50,000.

• The *Reality Hackers* magazine (now called *Mondo 2000* because *hacker* is too workplace a word now) party was held at a sports/dance bar near Moscone Center. There was at least one TV screen, or loudspeaker, per square foot in the place. Cyber videos of virtual reality devices, Talking Heads, and Survival Research Labs competed with an invasion of hotel junior managers on an "executive training" scavenger hunt.

Why do groups of people that depend on fancy talk for status have parties in loud spaces? Is it possible to communicate current thoughts on torturing computer AI programs, or dreams of sticking radio antennas up your spine, in a cavernous din? If we would only have low power radios implanted in our ...

Shareware Spotlight

Last month part of the shareware spotlight got left on the cutting room floor. Here's the rest of the story for those of you that didn't call the BMUG HelpLine!

• BMUGers, John Sawyer and Chuck Meyer of Berkeley's CJS Systems (one of the Bay Area's best and experienced repair shops) had encountered a serious problem with 800 K floppy drives.

Every once in a while, the read/write head catches on the shutter door of the diskette and tears off as the disk is ejecting, permanently damaging the drive. This would usually happen if the heads were towards the outer edge of the disk.

John and Chuck got Jay Riley to write an INIT, *SafeEject,* to help fix this problem. *SafeEject* moves the read/write head to the center of the diskette just before it is ejected. This action should prevent the head from being snagged. The new Apple FDHD drives do this automatically.

SafeEject and a lot of other goodies are on BMUG *Utilities 14* disk.

• Some of the best shareware fonts for the ImageWriter II and LQ are by J.W. Leedom of Roanoke, VA. The *Clairvaux* and *York* fonts are wonderful letter quality serif and sans-serif additions to your system. The shareware registration fee is $10.00. They are on BMUG *Fonts 15* disk.

Recent size and quality supplements to the fonts for LQ users are on BMUG *Fonts 19* disk. The additions add characters to the fonts, allowing **Best** quality printing in 9- and 10-point sizes. ■

Upcoming Events

August 10	Loop Software *PictureBook, Nicolez To Artemis*
August 17	Acius *4D 2.0* with Guy Kawasaki
August 24	Odesta *Double Helix 3.0*
August 31	To Be Announced
September 7	Checkmate Technology *MacSaver*
September 14	To Be Announced

What Is BMUG?

BMUG is a non-profit educational corporation, promoting the exchange of information. Like any growing organization, it is many different things to its 6,500+ international membership. BMUG, Inc. is a computer user group located in Berkeley, California. The group specializes in computers using a graphical interface. For a while that meant the Apple Macintosh but now includes other makes, models, and operating systems, including the NeXT best thing. BMUG supports many Special Interest Groups (SIGs), a eight-line Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, and much more. BMUG also puts out a semi-annual 400+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6:00 to 9:00 (or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus.

The BMUG HelpLine, (415) 849-HELP, and our fax number, (415) 849-9026, provide technical assistance and telephonic hand-holding during business hours (10:00 am - 5:30 pm). If your question can't be answered on the spot, we try get you in touch with someone that can help. Of course, not every problem can have a happy ending — but we try.

BMUG has one of the most up-to-date, comprehensive software libraries around with 400+ double-sided disks filled with the latest versions of public domain or shareware programs and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the *PD ROM*™, our entire library, and more on CD-ROM — according to Apple, it's the best selling CD-ROM!

Our BBS offers many of the latest versions of files in our software library as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet (161/444); by calling a local FIDOnet BBS in your area, you would then be able to get in touch with us wherever you are as well as send mail to users everywhere! BMUG is now a part of the international USENET network (apple!bmug!user.name@sun.com) or (user.name@BMUG.FIDONET.ORG). With our multi-line capability you are now able to have access to BMUG almost 24 hours a day. It's easy to use, fun, and a great resource.

To get some further information about BMUG please write to: BMUG, 1442A Walnut Street #62, Berkeley, CA 94709. If you prefer to phone our business office call (415) 549-BMUG or FAX (415) 849-9026.

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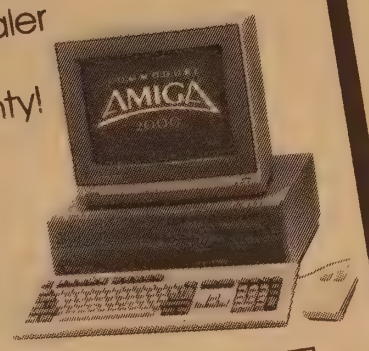

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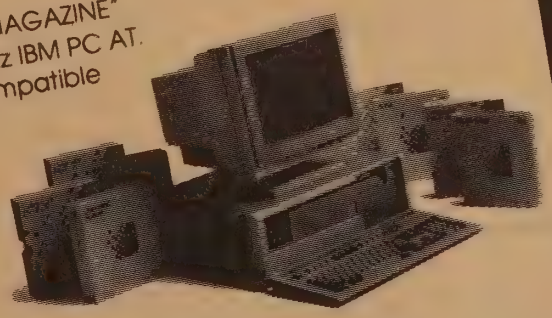

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HYPERCARD

BY BIRRELL WALSH

Student Stacks

SF's International Studies Academy And Its Mac Lab

'Can't you let me stay after school?" the student asked. The teacher had a meeting, and couldn't. Students come into the Macintosh Laboratory at ISA as early as seven in the morning, and they may be there until dark.

The International Studies Academy in San Francisco is a public high school for studies in the humanities, languages, and international relations. It is a magnet school, and the Macintosh laboratory was set up with a Federal magnet grant. Want to know if your tax dollars are well-spent? Take a look.

I visited ISA late in the spring. The students were deep in a *Videoworks* animation that was their final project. This was not the run-of-the-mill word-processing laboratory we see in a lot of schools. This school is giving the students a chance to work with state-of-the-art equipment and software. They will enter the job market with real skills that are well above entry-level.

In a one-year computer literacy class, students begin with essays in Microsoft *Word*. They move to *Excel*, and do either a business plan or a survey of fellow students that they analyze statistically. Their next project is to design a business, do a business plan in *Word*, a one-year projection in *Excel*, and an advertisement in Aldus *FreeHand*. Then they start *HyperCard*.

Some of their work rivals corporate *HyperCard* stacks. They have drawn or scanned-in illustrations. They have a stack structure that matches the subject they have chosen, with an easy grasp of hypertext. The French stack by Norvella Brooks, Ida Swanson, and Valery Laurent incorporates recorded French and English voices. The work is clean, and the stacks run smoothly.

How did we get this working gem of a computer lab? ISA administrators obtained grant money for a computer lab. Ted Barone, who manages the lab and teaches in it, is a driving and entrepreneurial sort.

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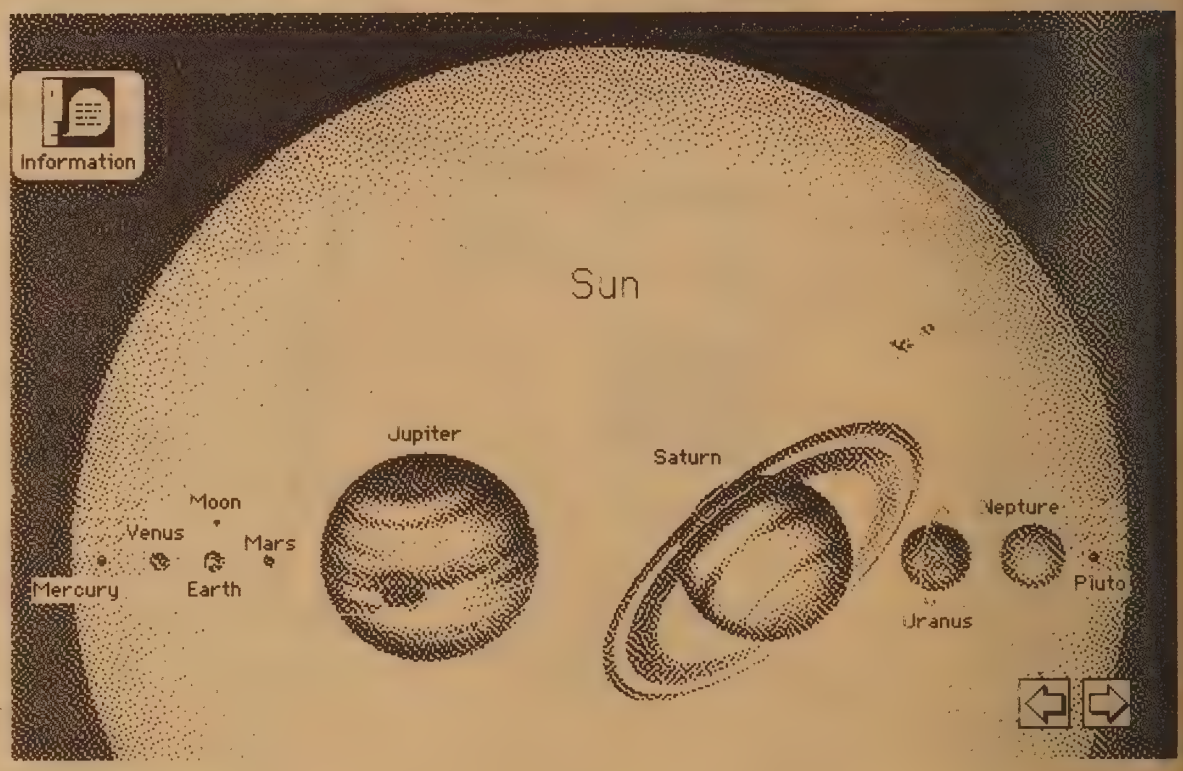
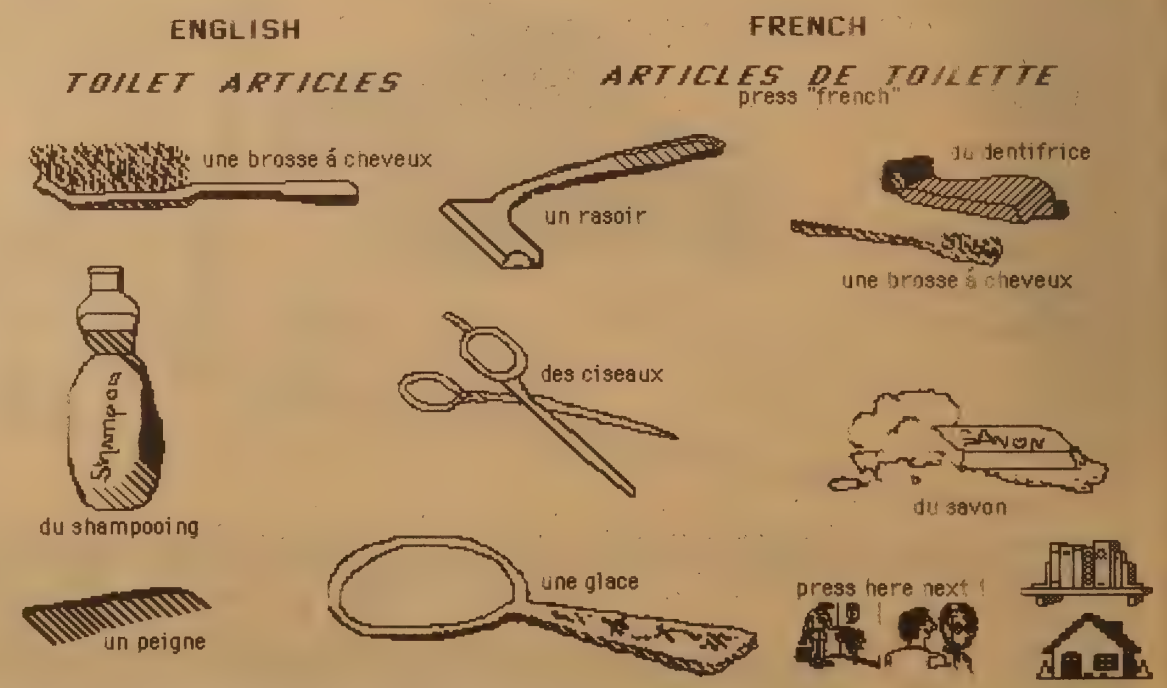


"Astronomy" by Anthony Wong. The user tours the solar system and can ask for information about any planet.



French by Norvella Brooks, Ida Swanson, and Valery Laurent. Hand-crafted art, extended trees of hypertext, and bilingual French-English sound recordings of each word. This is my favorite stack from ISA.

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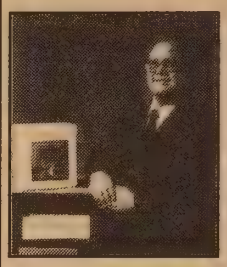

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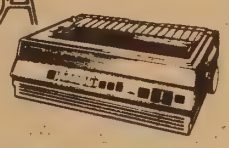

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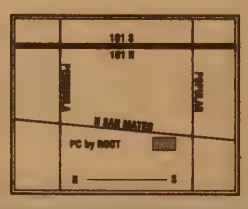

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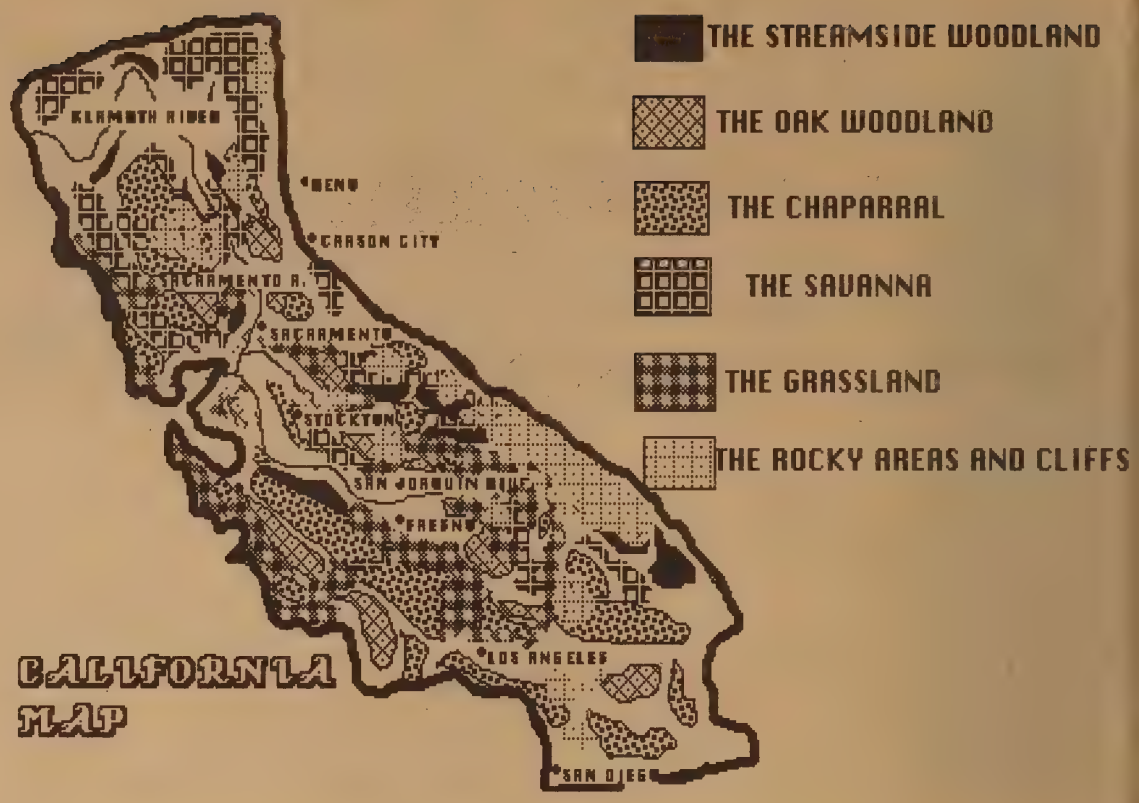
This school is giving the students a chance to work with state-of-the-art equipment and software. They will enter the job market with real skills that are well above entry-level.

His present principal, Steve Hirabayashi, refers to him as "one of the gurus of the district." His former principal, Margaret King, says that he attended seminars on his own time to find the ideal hard- and software combination for the lab. Other teachers at the ISA contributed their wish lists, and by the spring semester of 1988, there was a working laboratory.

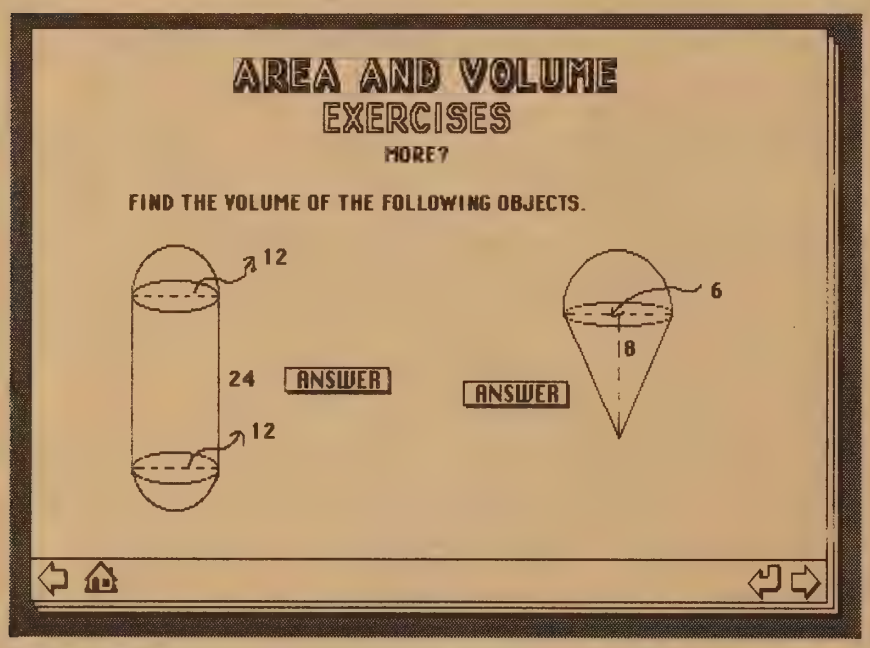
This combination of enterprise and administrative support meant that ISA got the ideal setup for a multicultural school. The Mac's graphic environment can support ideographic languages like Chinese and Japanese as well as alphabetic languages. Since the Mac is an artist's tool, students can use it to express themselves while learning high-level skills.

The students and teachers have pressed the environment into many forms of service. The school paper is published on *PageMaker*. Students in an English class have published a book of poetry to raise funds for the homeless. A biology class has published a pamphlet on scientific inquiry. Social science classes do essays and statistical charting. Posters have been produced in many languages. Students learn English, mathematics, design, and collaboration while they master advanced software.

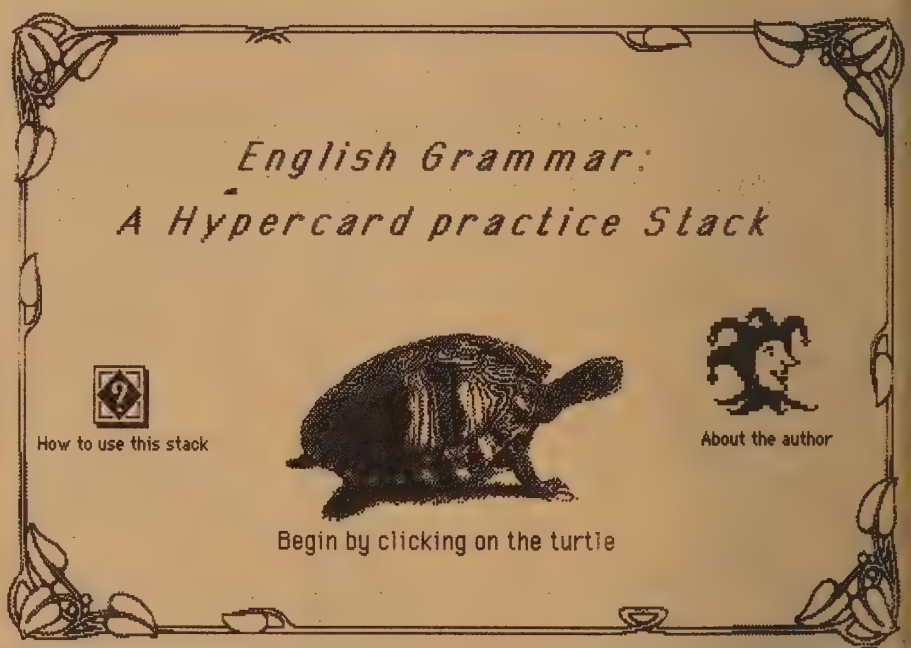
And they plead to be allowed to come in after school. ■



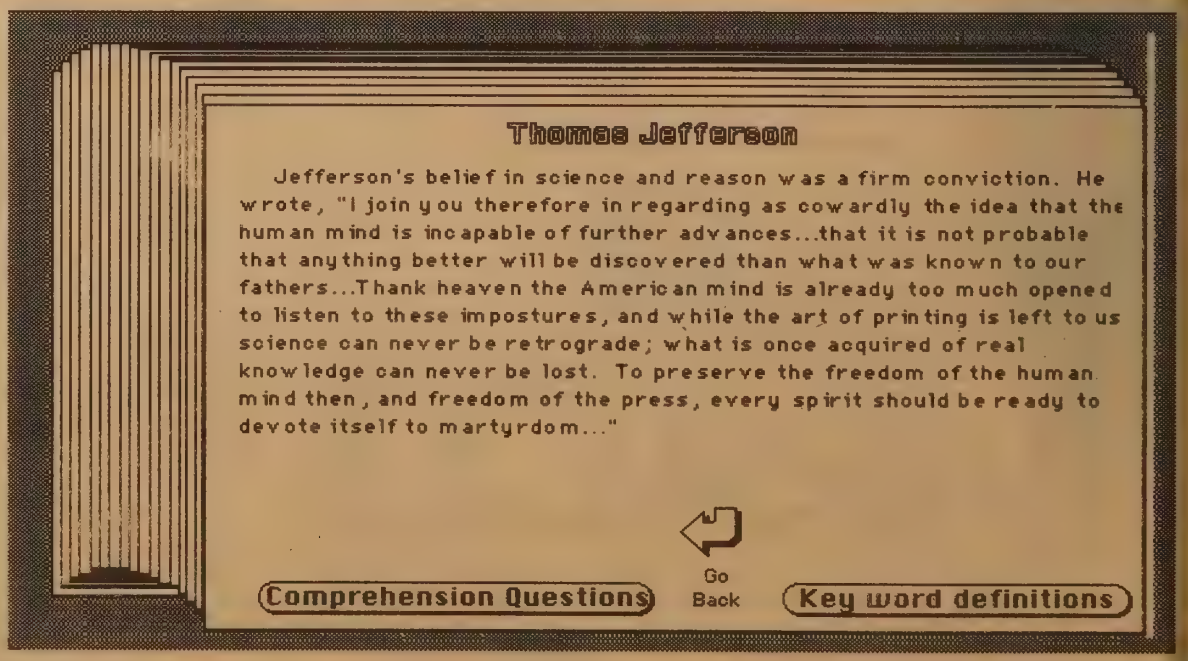
"California Wldlife" by Patti Su. The stack lists major plants and animals in ecologies throughout the state.



"Geometry" by Jason Z.T. Luo is a hypertextbook with definitions, problems, and answers.



"English Grammar" by Kenneth Kwok. The user must find common mistakes in English and correct them. Mr. Kwok's uses hypertext gracefully to give instant feedback.


Thomas Jefferson
Jefferson's belief in science and reason was a firm conviction. He wrote, "I join you therefore in regarding as cowardly the idea that the human mind is incapable of further advances...that it is not probable that anything better will be discovered than what was known to our fathers...Thank heaven the American mind is already too much opened to listen to these impostures, and while the art of printing is left to us science can never be retrograde; what is once acquired of real knowledge can never be lost. To preserve the freedom of the human mind then, and freedom of the press, every spirit should be ready to devote itself to martyrdom..."
Go Back
Comprehension Questions
Key word definitions

Reading Comprehension by Ida Swanson & Norvella Brooks. The user who makes it through this stack is ready for standarized tests.

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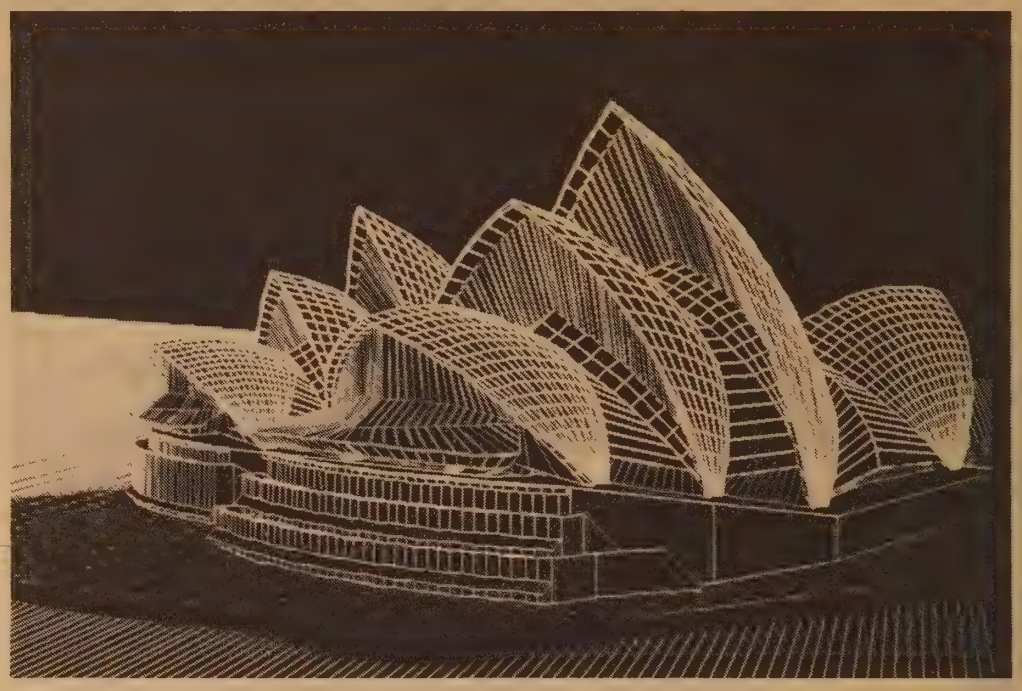
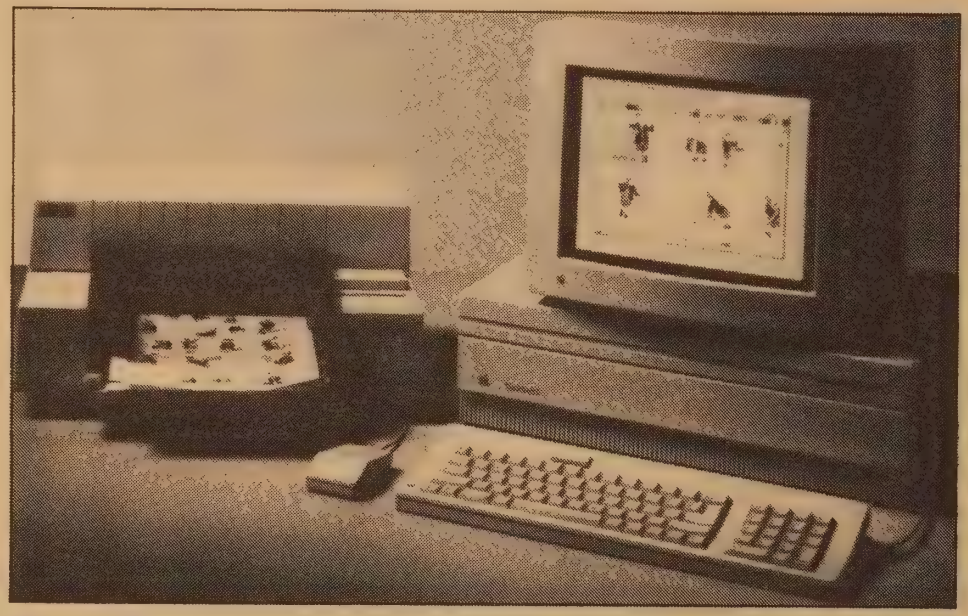
CAD Standard Moves To The Mac II



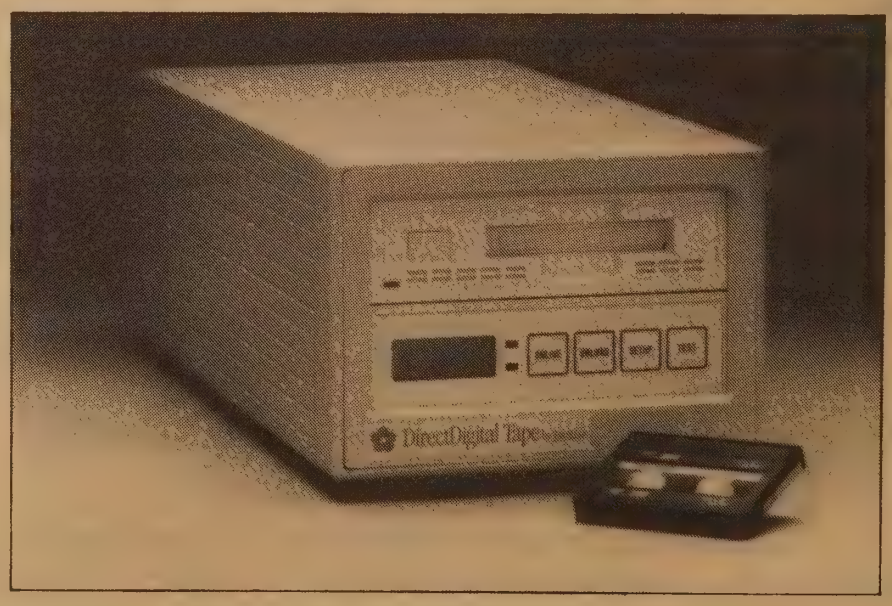
AutoCAD, long a CAD standard in the PC environment, is now available for the Mac II *AutoCAD* for the Mac features a full implementation of the product, including 3-D wireframe modeling, surface modeling, and a multiple viewport facility. It also contains Autodesk's high-level programming language, AutoLISP, which offers a powerful means of customizing menus and commands to tailor the software for specific applications. Since *AutoCAD* files are totally portable, any information developed with the Macintosh version can be shared with any other platform running *AutoCAD*—without file conversion. The Macintosh version implements standard Macintosh user interface features such as support for MultiFinder, the Macintosh windowing system, and Pull-down and Tear-off menus. *AutoCAD* also provides export facilities to other applications via the Macintosh Clipboard. ($3,000) Autodesk, Inc., 2320 Marinship Way, Sausalito, CA 94965. (415)332-2344.



MacPrint Connects HP Laser And Inkjet Printers To The Mac

MacPrint 1.1 is device management software that adds full support for Hewlett-Packard's DeskJet, DeskJet Plus, and LaserJet Plus printers. The latest version of *MacPrint* provides all supported printers with the capability to print envelopes and print in landscape mode. It also includes four fonts designed and licensed by Agfa Compugraphic. *MacPrint* comes bundled with *Font Mapper*, which creates Macintosh screen fonts. These fonts match the printers internal fonts, all HP font cartridges, and third party font cartridges. *MacPrint* can connect any HP compatible laser or inkjet printer to the Macintosh, such as those available from Epson, Panasonic, Okidata, Everex, and Ricoh. It is installed as a Chooser device using a supplied installer program and is operated with standard Macintosh printer dialog boxes for transparent use. ($149) Insight Development Corporation, 2200 Powell Street, Suite 500, Emeryville, CA 94608. (415)652-4115.

Jasmine DAT Drive With RACET Software Released



The Jasmine DirectDigital Tape Drive has a capacity of 1.2 Gb and is capable of locating data anywhere on the tape within 40 seconds. The DirectDigital DAT (digital audio tape) drive can transfer 1 Mb of data in an average of 25 seconds compared with about 500 seconds to transfer that amount of data on an 8 mm tape system with a comparable capacity. This drive includes RACET backup software, which permits backup by date, file type, folder, or any other selection criteria the user chooses. ($6,995) Jasmine Technologies, Inc., 1740 Army St., San Francisco, CA 94124. (415)282-1111.

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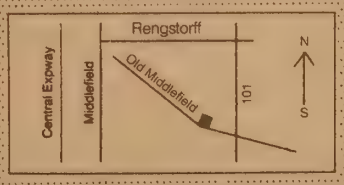

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MAC-PC CONNECTIVITY

BY ROBERT BEAUCHAMP

When Is A Mac Not A Mac?

When It's A PC Remote Terminal

Macintosh purists should hate *PC MacTerm*. Their flesh should crawl, their spines arch, and their hair stand on end at the very idea of what *PC MacTerm* does. All across the land loyal and steadfast Mac enthusiasts should rush to their user group meetings and raise a united cry of disdain at Dynamic Microprocessor Associates for this act of blasphemy.

You see, *PC MacTerm*, as its name implies, turns your Macintosh into an IBM PC compatible terminal, a feat many of the faithful will not even believe possible. However, I'm here to testify that it can be done, and done very well at that.

It is rather ironic, as the DOS world ponderously attempts to catch up with the Mac's graphic interface, that a company like DMA can turn the whole issue on its head and come up with an excellent connectivity solution. Rather than spend thousands of dollars trying to get your PC to look like a Mac, you can spend a couple hundred and get your Mac to look like a PC.

What Is A Remote Terminal?

Turning a Macintosh into a PC remote terminal is bound to offend the sensibilities of some. However, for the connectivity-minded, the prospect of actually using PC *applications* on their Mac is truly exciting.

A remote terminal is simply a PC that calls up another PC or a mainframe computer and accesses its files and applications. This is usually done over the phone lines with each computer having a modem.

For example, you might have a PC at home and want to access files on your PC's hard drive at work. Rather than copying files onto floppy disks and bringing them home, you can work off the PC at work as if you were actually there.

This is especially important to those who have PS/2 speedsters with 110 Mb hard drives at work and an original IBM PC with a single floppy at home. The PC at home becomes the *screen* from which you work from, while the PC at work is the *computer* you work from.

Copyright © 1989 by Robert Beauchamp. All rights reserved. *Rob is a freelance journalist and documentation writer who resides in Minnesota and misses, sometimes, the lovely and crowded Bay Area.*

DMA's PC remote terminal product is called *pcANYWHERE III*. There are two parts to *pcANYWHERE III*. There is the software that manages the host computer, the one with the big hard drive, and the software that runs the remote terminal, your PC at home.

While *pcANYWHERE III* comes with the software necessary to run PC remote terminals, running a Mac remote is slightly different. Hence the need for *PC MacTerm*.

pcANYWHERE III also supports a multiuser environment in conjunction with *DESQview 386*. However, you do need a 386-based computer to do this. Otherwise, all you need to run *pcANYWHERE III* is a PC with a disk drive and a serial port. *PC MacTerm* will run on any Macintosh.

How Do They Do It?

We've been trained that the Mac is so fundamentally different from the PC that the concept of using PC applications from your Mac is a hard one to grasp. However, if bits and bites are the universal building blocks of computer software, then photons are the universal components of what goes on your screen. What *PC MacTerm* is doing is simply allowing the host PC, running *pcANYWHERE III*, to show its stuff on your Mac's screen. Neither environment has a proprietary lien on physics.

The trick, then, and not an easy task to accomplish, is to have the IBM screen show up on your Mac in a readable format and allow you to use your Mac keyboard to operate software designed for a PC keyboard.

To solve the first problem DMA opted to represent the 80 X 25 text screen that is the PC standard. This allows you to use all the PC programs that use this standard, such as *Lotus 1-2-3* and *WordPerfect*.

PC MacTerm does not as yet support the PC graphics standards EGA, VGA, or MCGA. Therefore, you cannot use it to access such programs as *PC Paintbrush*.

However, this does not mean that you can't access text-based applications while they are running in a graphics mode on your host PC. For example, you may have a VGA card in your PC, and when you run *WordPerfect* it takes advantage of the clarity and colors your VGA card offers. Since it is still text-based, however, you can access it from your Mac with no problems. With a program such as *WordPerfect 5.0*, which has both text and graphics elements, you can use the word processing part but not the page preview or graphics placement capabilities.

The second problem is keyboard compatibility, and *PC MacTerm* handles this with classic Mac style.

If you have the extended keyboard or a third-party keyboard such as the DAC 101, you don't have to worry about this, as the shift, alt, cntrl, and function keys operate as they would on the PC.

If you have the standard Macintosh or Macintosh Plus keyboard, *PC MacTerm* provides a visual function key menu across the top of your screen. All you have to do is click on the function key you desire. You can also hit command and the appropriate number from your keyboard to use function keys. *PC MacTerm* provides visual as well as keystroke equivalents for all the other PC keyboard keys such as cursor, esc, and the numeric key pad.

Using Your PC On Your Mac

There are advantages and disadvantages to using your Macintosh as a remote terminal. The first advantage is that if you only have to use text-based applications from your PC, you don't have to buy a PC to work at home. All those bosses out there who won't pay for a Mac at home now have one less excuse.

Another advantage is that you get to use your Mac's cut and paste capabilities while using your PC application. It is a joy to highlight a whole section of a *WordPerfect* document, cut it, and paste it somewhere else with your Mac's mouse. *WordPerfect* doesn't even support a mouse.

You can also take text from your scrapbook and place it in your PC word-processing document. Conversely you can take selections from the PC document and keep it in the scrapbook for use in your Mac applications.

The biggest disadvantage is the time lag between your commands and their implementation. This is due simply to the slow rate at which information travels over the phone lines. A faster modem, obviously, means better performance.

The other disadvantage, as stated before, is *PC MacTerm*'s inability to use PC graphics-based applications.

Other Connectivity Issues

PC MacTerm doesn't stop here, however. It also allows you to do remote printing and file transfer.

After working on your document you can use your host's printer to print your document. What could impress your boss more than a laser printed

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- Enhanced Resolution Drivers Available For Wordstar, Word Perfect, Lotus 1-2-3, Microsoft Window, Page-Maker Auto-Cad, Gem Desktop Framework II, Ventura Publisher
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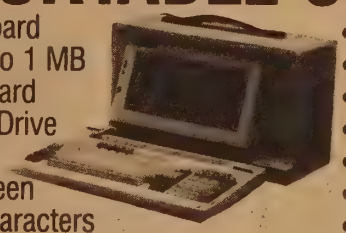

- 80286-10MHz Motherboard
- 640K Ram Expandable to 1 MB
- Dual HD/FD Controller Card
- Teac 1.2 M Floppy Disk Drive
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- Non-Glare 11" LCD Screen
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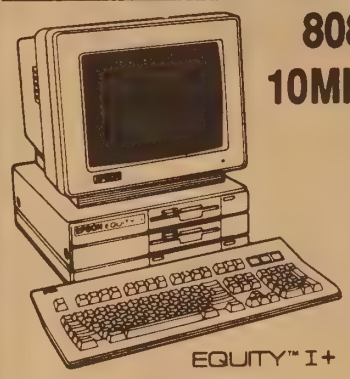

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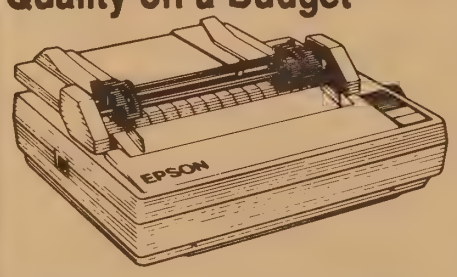

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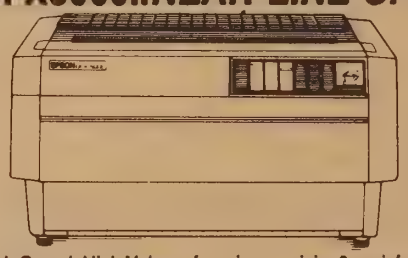

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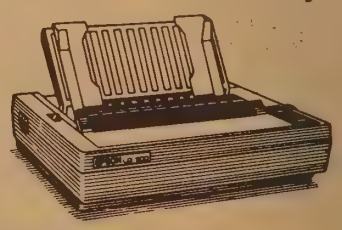

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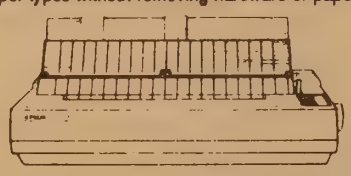

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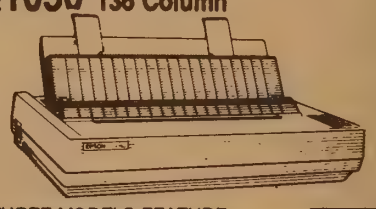

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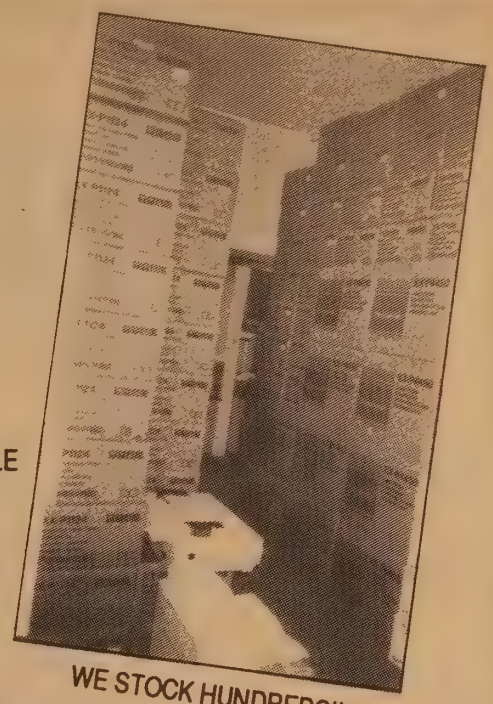

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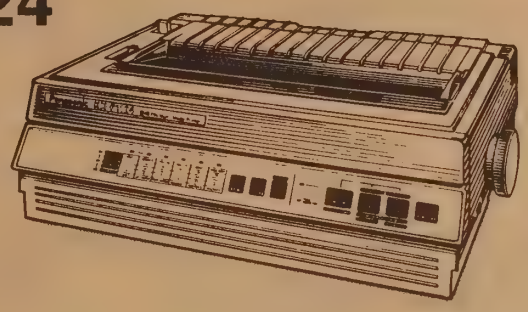

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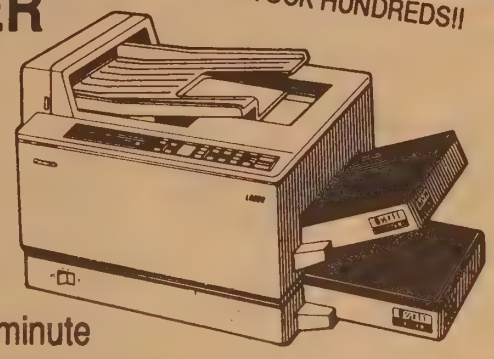

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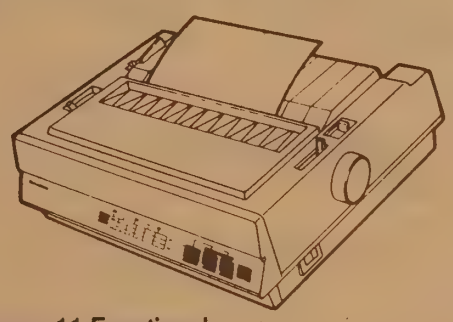

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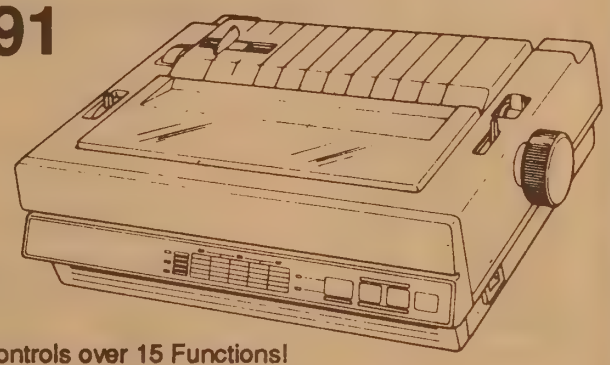

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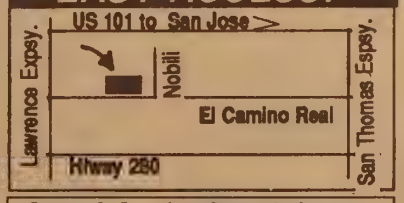

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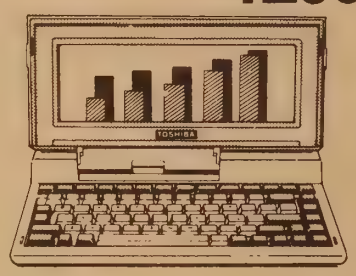

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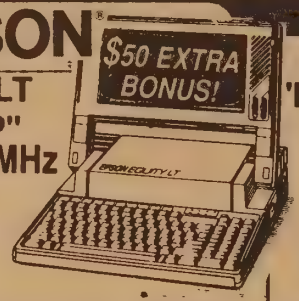

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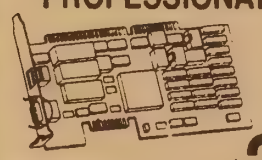

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LQ850	264cps,88cpsLQ,80col	569
LQ510	24pin,180cps;60cpsLQ	349
EX800	300cps;54cps NLQ	399
EX800	Color	469
LX810	180cps;30cpsNLQ,80col	199
FX1050	264cps,54cpsNLQ,136col	479
FX850	264cps,54cpsNLQ,80col	375

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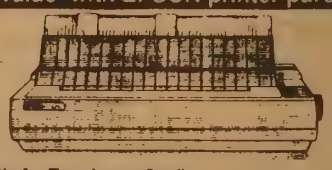

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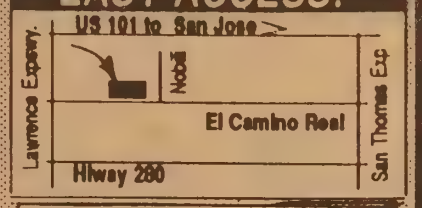

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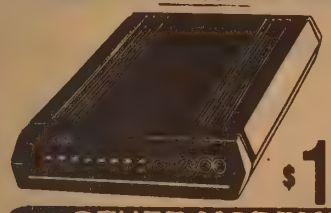

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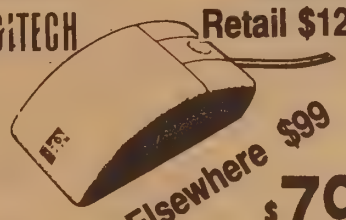

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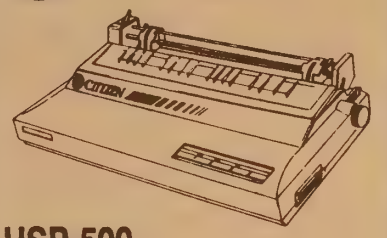

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- Paper Park & Convertible Push/Pull Tractor...plus Bottom Feed
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- 2 Draft & 2 NLQ Fonts
- Color Option Available

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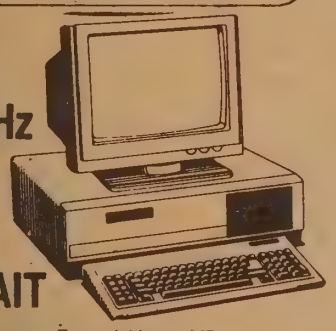
286 12MHz



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With VGA Monitor & card.....$1399

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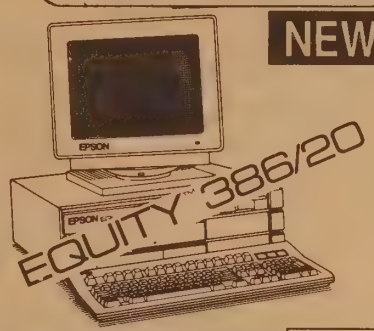

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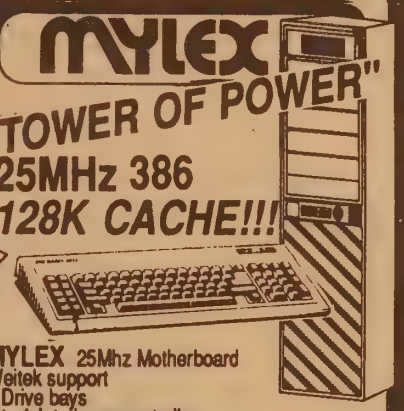

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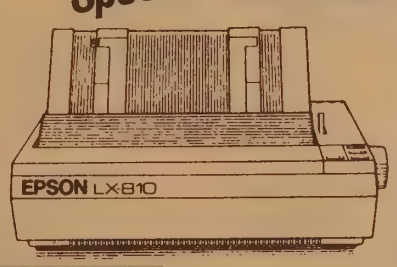

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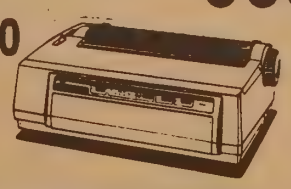

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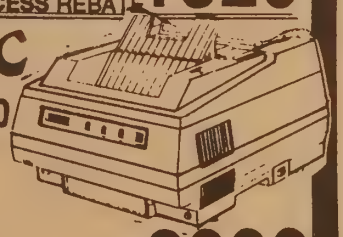

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report on his or her desk before you even come in to work?

You can also print your PC document on your Macintosh printer. However, if you're going to do serious printing on your Mac, DMA itself admits that using the Mac print function is not the best way to go. There are too many control characters and other assorted bothersome material that annoyingly fill the gaps between your text as you print on your ImageWriter.

PC MacTerm supplies you with the IBM fonts necessary to achieve true PCishness. Those who balk at putting anything called IBM in their system file probably won't want to use *PC MacTerm*'s print function anyway.

The best way to print your PC files on your ImageWriter, according to DMA's technical support, is to translate them into a Mac word-processor format and print them from there.

However, due to the magic of PostScript, *PC MacTerm* can detect a PostScript file coming over and will print PostScript files on your Mac's LaserWriter.

File Transfers

What would a connectivity product be without file transfers? At present *PC MacTerm* handles file transfers rather awkwardly. You do file transfers from your PC and Mac and back again from the PC's DOS prompt. DMA has assured me that it will have a Mac oriented file transfer function in the next release to be demonstrated at the upcoming Macworld Expo, Boston.

PC MacTerm does not have file translating capabilities. However, in combination with the file translating accessory you get for free with your Macintosh's system software, *PC MacTerm* offers some competition to such products as *LapLink Mac* and *MacLink*. For a list price of $244 you get *PC MacTerm* and *pcANYWHERE III*. This is a lot of connectivity for the money.

Cable Issues

You don't need two modems and a phone line to take advantage of *PC MacTerm*. You can directly connect your PC and a Mac with a cable through their serial ports.

You may very well ask, "Why should I run a PC program on my Mac while my PC is sitting two feet away?" The answer is that *pcANYWHERE III* runs in the background. You can access PC applications while someone else is using the PC for something else.

Everything runs much faster when directly connected because you can assign a baud rate up to 57000, which is much higher than the fastest (9600 bps) modem.

You can't use just any cable, however. The cable that comes with *MacLink* won't work, while the cable that comes with *LapLink Mac* will. There are complete cable specifications included in the *PC MacTerm* documentation. You can either make the cable yourself, have your local computer dealer make one for you, or buy one from DMA.

You get to use your Mac's cut and paste capabilities while using your PC application. It is a joy to highlight a whole section of a WordPerfect document, cut it, and paste it somewhere else with your Mac's mouse. WordPerfect doesn't even support a mouse.

Conclusion

In an era when slick marketing has begun to dominate the computer industry, *PC MacTerm*'s and *pcANYWHERE*'s packaging may not attract the casual software shopper. However, its functionality rises above its plain face.

With the promised improvements of added file transfer features and the use of PC graphics based applications, *PC MacTerm* should become a well-known product. If for no other reason than this: the thought of running Microsoft *Windows Presentation Manager* from the Mac is an irony too delicious to ignore. ■

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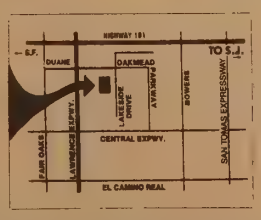

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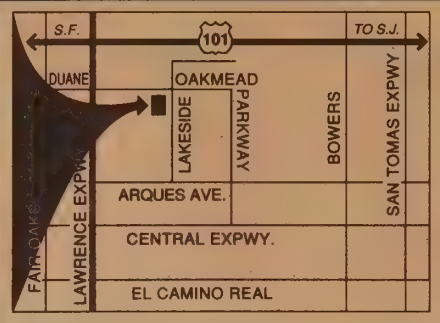

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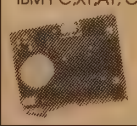

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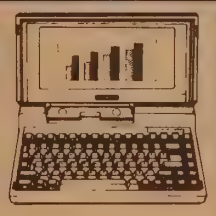

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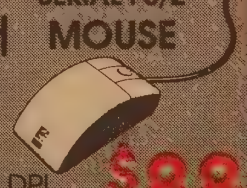

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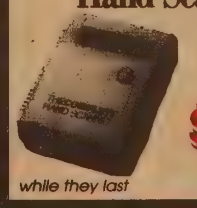

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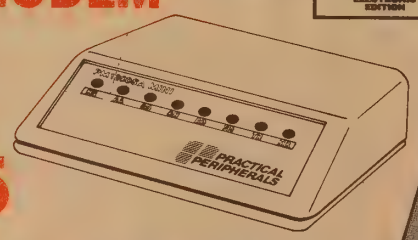

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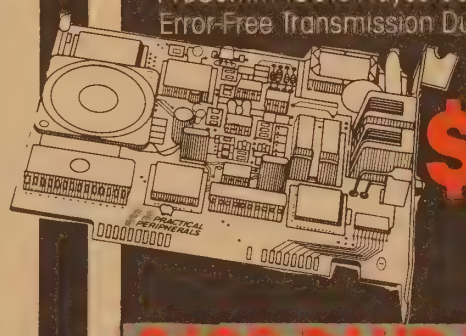

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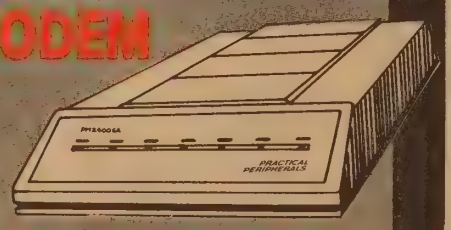

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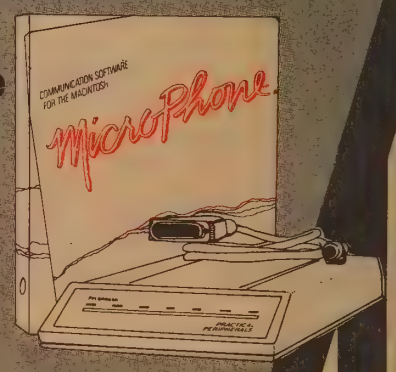

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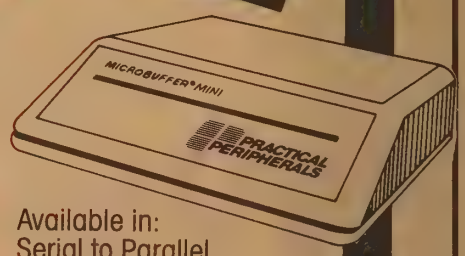

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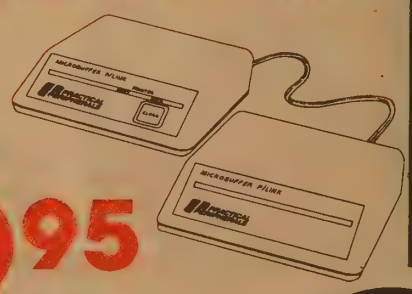

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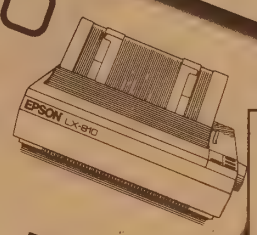

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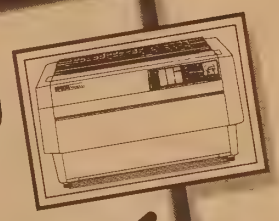

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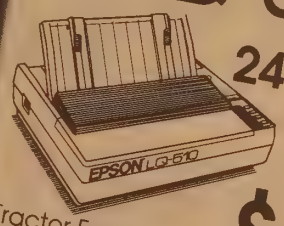

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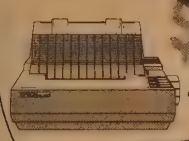

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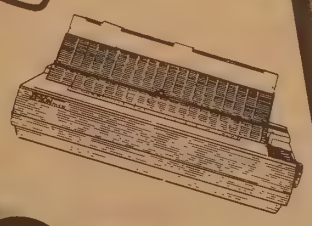

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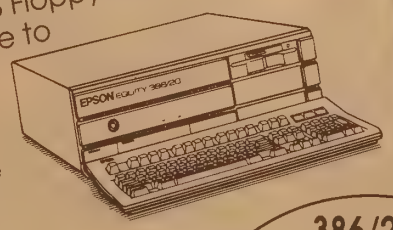

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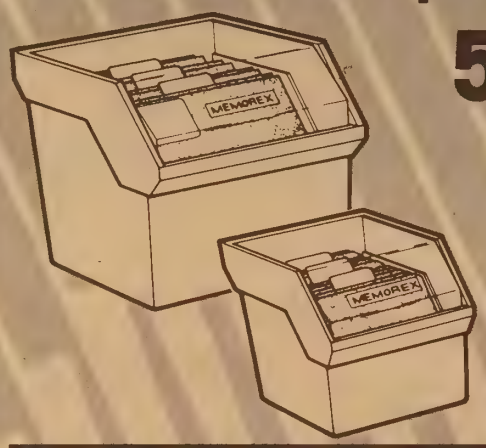

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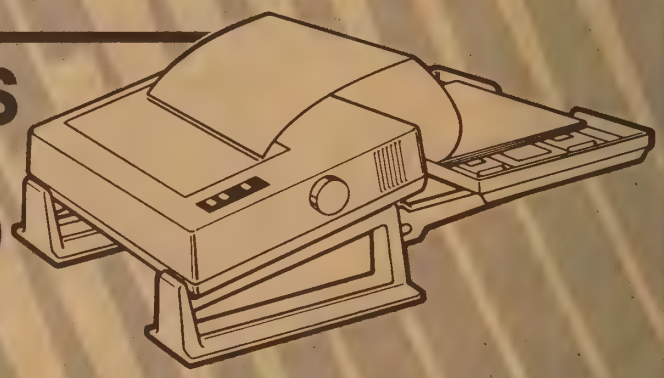

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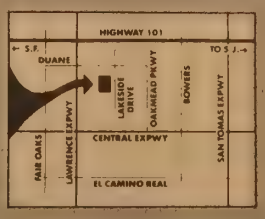

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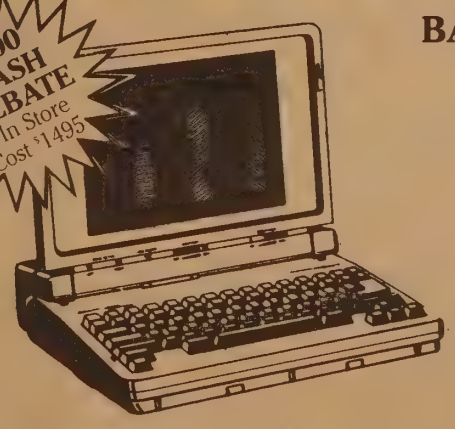

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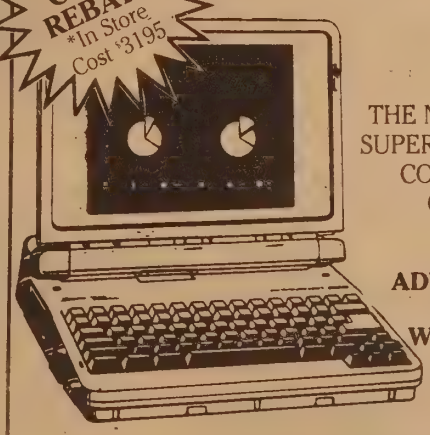

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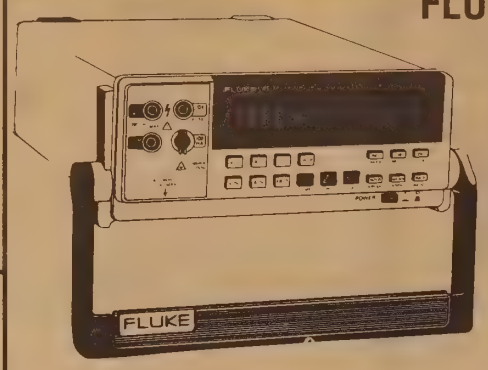

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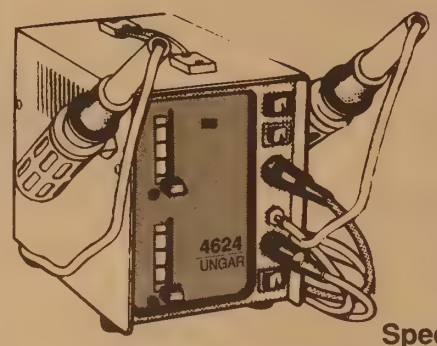

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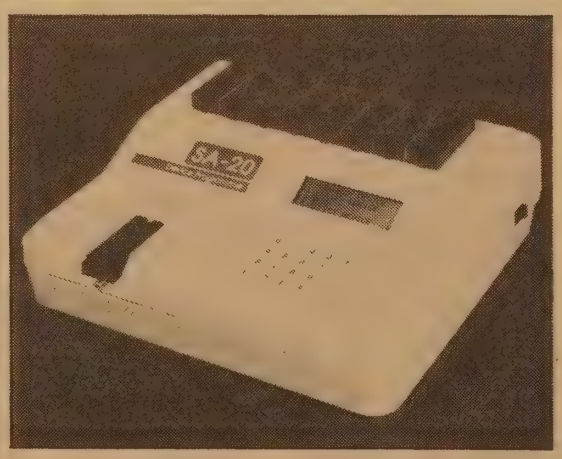

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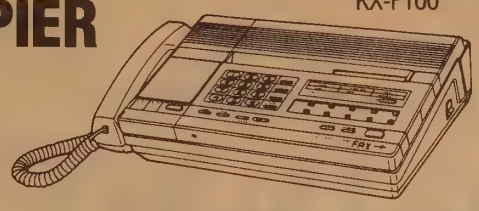

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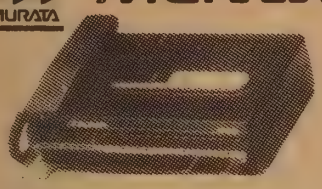

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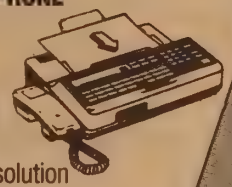

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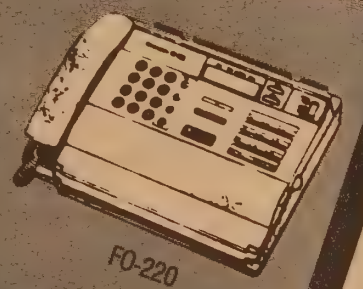

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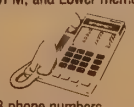

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- Switchable tone and pulse settings for compatibility with tone-accessed long distance services and other tone-actuated computer systems

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You're On The Source He's On MCI She's On BIX Now What?

DASnet's Inter-System Communications To The Rescue

By Faith Florer and Art Kleiner

Computer conferencing has never quite lived up to the expectations its pioneers had for it. Many computer networkers (ourselves included) have been swept away by the utopian ambiance of the medium—where people express their most heartfelt thoughts to sympathetic strangers through words they type in via computer and modem, without fear of being judged by their appearance or charisma, a process that often leads to exciting, unexpected contacts or even deep friendships.

But all that contact also makes it all too easy to get exhausted. Computer conferencing systems are small colonies of people—reaching out to each other, talking about personal matters, discussing issues, doing business together, taking part in online schools, and exchanging up-to-the-minute scientific and political news, even if their members are scattered internationally. Most discussions only have a dozen or two active participants, tops, at any given time.

Thus, if you want to stay on top of a widely discussed subject—such as events in China or superconductivity or AIDS or fusion—you'd have to sign on to a minimum of five or six different systems. And it's a rare person who can handle more than one or two computer conferencing systems with equanimity. Thus the confusion of finding common links—at a recent conference, for instance, we spent 15 minutes with our new acquaintances figuring out what networks we could use to keep in touch with each other. It's a problem unique to the information age. But here in the United States, a two-year-old network called DASnet is emerging with a unique, and workable, solution.

DASnet began as a Computer-Aided Design software development company in the early 1970s called D.A. Systems, with software running on Control Data computers. Like many other companies of that era, they became involved in the "office automation" movement—the then-preferred term for what eventually evolved into local area networks and other tools for hooking disparate offices of a company together. "We saw that isolated equipment and isolated departments are much more effective when they have ready communication channels," says DASnet's marketing manager, Anna Lange. "For that reason we got into the communications arena." Unlike most of the other companies jousting in that arena, however, DASnet's people looked at how people were using the networks to communicate with each other.

Since the first computer network—the Department of Defense's ARPAnet, spawned by the Advanced Research Projects Agency—conferencing between people had usually been secondary to exchanging data between machines. In fact, the first widespread effort to connect people using far-distant computers—the "newsgroups" of Usenet, in which university-based mainframes in the middle of the night, passed messages and conference comments back and forth between each other—had a distinctly outlaw flavor, particularly in its early days. So did similar approaches like the FIDONet (in which computer bulletin boards running the FIDO shareware exchange messages). It wasn't that users of these networks had to identify themselves as anarchists—though some would not have minded—but that they had to pass through a technical gauntlet, proving that they could master the complex code-and-addressing schemes required to get the right message to the right person. Or (as in FIDO's case) they had to become part of the small community of peers who coalesced around each board. A computer-network equivalent of the phone company's "universal service" idea was far away.

As networks sought broader audiences, their members had less and less patience for learning several different interfaces. So DASnet's innovation made logical sense: an easy-to-use linking system between electronic mail and conferencing networks that were open to the general public.

But as networks sought broader audiences, their members had less and less patience for running those gauntlets. So DASnet's innovation made logical sense: an easy-to-use linking system between electronic mail and conferencing networks that were open to the general public. Within the last two years, the list of DASnet-linked networks has grown to include Dialcom (a system used mostly by large corporations), EIES (a research-and-experiment-oriented system based at New Jersey Institute of Technology, where much seminal research on computer conferencing has taken place), EasyLink (Western Union's entree into electronic mail), MCI Mail (a large, inexpensive email system), the Meta Network (a group of pioneer conferencers communicating on a system based in Washington), PeaceNet/EcoNet (a socially conscious Bay Area-based system), The Source and GENIE (two consumer-oriented, national systems), BIX (a system founded by *BYTE* Magazine), GEOMail (based in London), the WELL (Whole Earth's freewheeling conferencing network), UNISON (a Chicago-based regional network), UUCP (a gateway to all those university-based USENET mailboxes) and a dozen others, from South America to Japan. None of these has overlapping memberships. Only H&R Block's CompuServe net-

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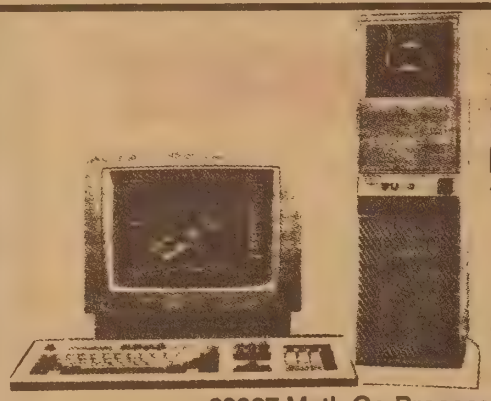

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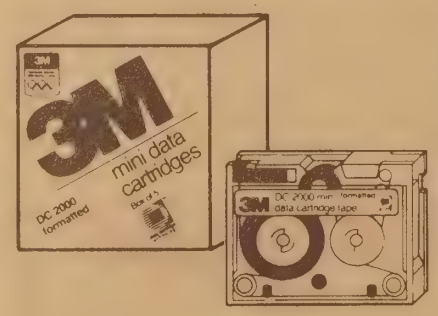

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work (which recently acquired The Source) has held itself aloof—unfortunately, because its 350,000-odd members include many who use no other networks.

How DASnet Works

Sending mail via DASnet is much like using your system's electronic mail facility, but with an inter-net address that includes the recipient's network "home" as its first component. Sending mail from the WELL to BIX, for instance, would mean sending to an address that looked like this: BIX>Joe Smith.

A DASnet membership costs $33.50 to start plus $4.75 a month. There's also a charge per message—a one-page message from the WELL to BIX, for instance, would cost approximately 65-70 cents, billed through your home network.

"We have used the system since it was introduced on EIES in 1987, and find it to be quite reliable," said Tina Vozick recently. As Vice President of Connected Education, Inc., she co-administers a school (affiliated with New York's New School for Social Research) that offers a dozen or more college-level courses via computer network every semester. "We work almost exclusively in the online environment and have a constant need to reach people around the globe. The beauty of the DASnet idea is that people are most familiar with their own home systems, and spend the most time there. Sending messages through DASnet means that even if you do have accounts elsewhere, your time can be spent most efficiently, while DASnet worries about signing onto the other systems and getting the messages sent. The cost is low, and I'd rather spend my time at more productive work than being the letter carrier in addition to the letter writer."

Not only do networkers have the capability of communicating with each other despite being members of different home networks, they also have the capability of having their messages delivered by Telex, fax, and postal delivery. The fax service in particular takes the place of a fax board—at least for people who don't need to send or receive pictures. (Like most ASCII-based services, DASnet doesn't handle them.) More impressive is the DASnet directory of three million email addresses, which you can search online through any member service.

And then there is what DASnet calls Auto-Porting. Members of several networks can set up individual conferences so that they're linked between systems, and new entries are automatically ported to all. Conceptually, they become one large conference. The Electronic Networking Association used Auto-Porting to plan its recent face-to-face meeting in Philadelphia, linking together people on seven different systems. Because there was a time lapse between posting and responses, transcripts of the conference have an Alice-in-Wonderland quality; the normal rhythm of conversation is disrupted as people wonder what happened to responses that are actually in transit.

At a recent conference we spent 15 minutes with our new acquaintances figuring out what networks we could use to keep in touch with each other.

On the other hand, it makes conferencing with a cross-system reach possible, and, as Vozick says, "The conversation is a tad disjointed, but not really much more so than in any asynchronous computer conference."

DASnet is an interim solution; eventually, telephone companies will probably carry messages and conference comments directly between conferencing systems. But it's a solution that exists now, and one which is highly affordable. Perhaps most significantly, it translates the melange of commands from system to system. If you're on GENIE, and we're on EIES, you can reach us by DASnet mail without ever having to learn a single EIES command. You need not even be conscious that there are EIES commands out there, different than your own, to learn. DASnet is that most rare of creatures among online computer services—a trivia buster. (For information on DASnet, contact Anna Lange at 408/559-7434.) ■

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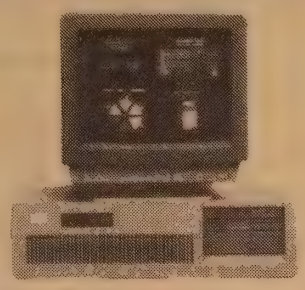

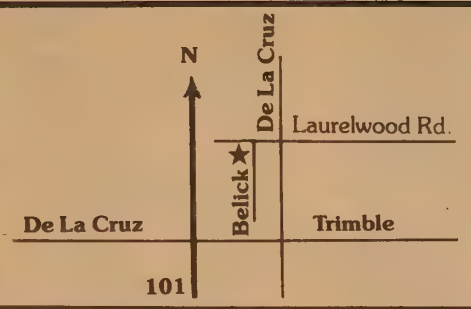

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By Ed Hughes

(A few months ago, Ed Hughes, a programmer in Colorado Springs, decided to do something completely different. So he took a job teaching English at a college in Dalian, China, intending to stay on at the end of his teaching contract if he found appropriate work in the burgeoning computer and communications industries.

Since Ed's father is telecomm evangelist Dave Hughes, he took along his father's old Toshiba laptop and a Worldport modem, the idea being to send regular electronic reports back via the phone lines. This turned out to be easier said than done, requiring elaborate workarounds, phone dissections, and alligator clips. Nonetheless, contact was made, and Ed was subsequently able to demo the wonders of electronic communications to the officials of local corporations.

Then came Tian An Men Square and events that shook the world, with technology in the thick of it. Chinese students worldwide put computer networks like Usenet's soc. culture.china newsgroups to work, distributing eyewitness reports from China and relaying news back to people at home—a fact that was lost on neither American newspapers nor the Chinese government officials generally assumed to be monitoring soc.culture.china with great interest.

Meanwhile, Ed Hughes continued to send accounts of life in Dalian to Colorado Springs, and we thought they were interesting enough to warrant wider distribution.—eds.)

Sat May 27 12:46 MDT 1989
Hello from China!

This is my first offical message.

Everything is well for me here.

My health is good and most people are quite friendly. Many are very curious about a tall, blond-haired, blue-eyed "wie-gou" (foreigner).

I am far from Beijing, and it is hard to get news except for the BBC and Voice of America. However, I heard that Li Peng has gained power, and that has put the people here in low spirits. I hope things will be successful for democracy here. This country needs it badly.

There are many leaders for just about anything. People just seem to get jerked around like a pinball until they settle into a little hole where no one will notice them... I guess that's why I like the young students so much. They haven't been thrown to the wolves of daily life yet. When I talk to them they are very curious and more or less happy. Different from most adults I have met.

Sunday, May 28, 1989
Early on, before noon, I was going downtown on the number fifteen bus. When I passed Stalin Square, there were a few thousand people, of which many seemed to be demonstrating students. I was with the 17-year-old daughter of a teacher at my school.

Later when we were coming out of the post office we saw a large group of about 2,000 protesting students from a local university marching down the street. They were marching and chanting spiritedly slogans against Li Peng asking/demanding that he step down, along with pro-Zhou Ziyang chants.

As the students passed, many smiled and waved at me, since I was the only foreigner and American on the street. Many waved the peace/victory sign, or waved asking me to join them. All I felt I could do was smile and shake my head in agreement and support.

After dinner I decided to go to Stalin Square, hoping to find some demonstrating students. When I got there, there were about a thousand people in the square. Many were reading signs written by protesters, which were glued to the walls of a large monument to a Russian infantry soldier. As I got closer I saw some students standing to the right of the monument. One student with a bullhorn was standing in front of a small banner held by two other students.

I took a few pictures of the students. Many people, like any other

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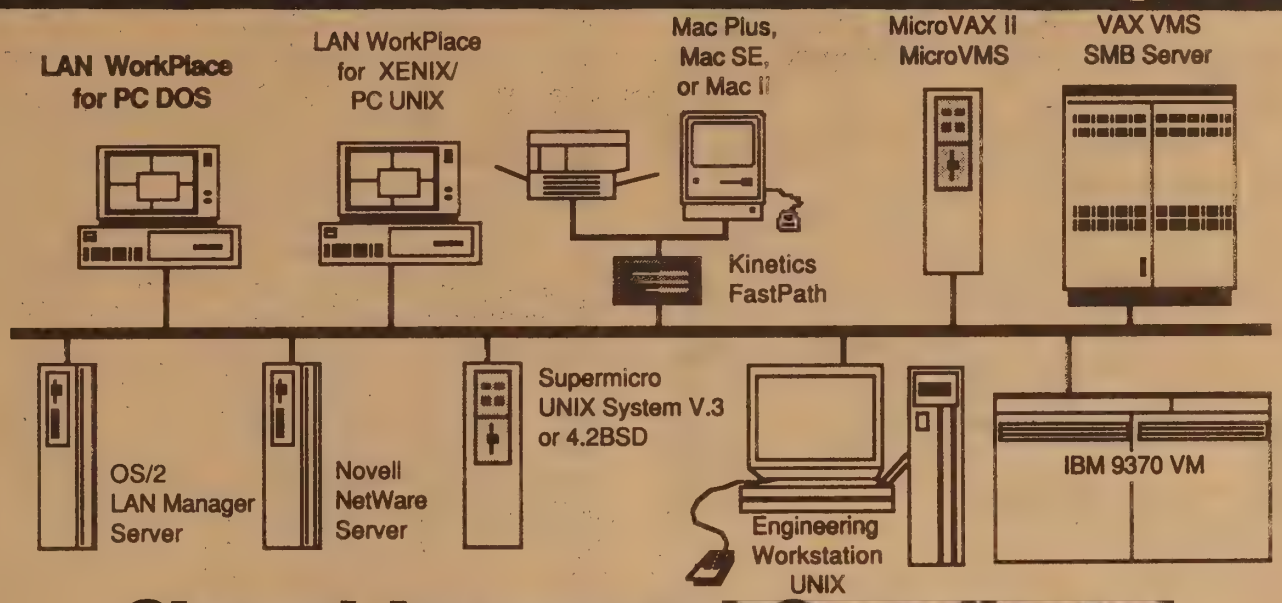
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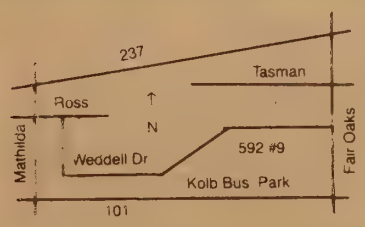

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time, took notice of me; some had gathered around and were shielding me from sight of the police. Being 6'4" and the only blond-haired person around, I stick out pretty easily.

As soon as the student began to speak, hundreds of people gathered around. Some of the students on the monument next to the speaker waved me to come up. I just smiled and nodded my head, feeling more confident that I was not going to get hassled by the police. People at the foot of the monument were reaching up to the speaker.

Soon some white vans with cherry lights on the roof arrived, with their speakers making announcements. I quickly backed away and put my camera away, then circled around heading toward the street. Many people were backing away as men walked through the main part of the square clearing people away. I wasn't sure if they were policemen or not, so I took my dictionary and asked a neatly-dressed man of about 30. He replied in simple English that yes, these were policemen.

I crossed the street to get away from the commotion and stood around looking for my bus to come. When I realized that it wasn't coming I started to make my way to another bus stop that was less in the middle of things.

That's when a man in a pin-stripe suit showed me a card. It said something typed and in handwriting to the effect of "Dalian Security." He motioned that I follow him. Everyone in the crowd followed with their eyes.

My biggest fear was for my camera and film. He said something, both in Chinese and an attempt at English. Then a uniformed policeman came over and asked if I spoke English, to which I nodded yes. He then said, "Would you please leave?"

As I left I noticed that virtually all the posters were gone and the concrete part of the square and the monument itself were cleared of civilians.

[On June 3 the infamous massacre took place.—eds.]

June 6, 1989 - 22:45pm

A student from one of the local colleges came to visit me and brought me some traditional food on Tuesday evening.

I was trying to make dinner and was in the middle of making my tenth mistake when suddenly she got very upset. She simply broke down and started to cry about the problems her country was suffering and all the people that have died in Beijing.

She said that a student had returned from Beijing covered with blood. I couldn't tell if she herself had seen him or if this was a rumor. She did say that there were soldiers in her school, and that the school was empty and would remain so until at least mid-August, until school is supposed to start again.

A student from one of the local colleges came to visit me and brought me some traditional food on Tuesday evening. I was trying to make dinner and was in the middle of making my tenth mistake when suddenly she got very upset. She simply broke down and started to cry about the problems her country was suffering and all the people that have died in Beijing.

She continued to tell me to be quiet and not talk on the phone about the protests; I could get into a lot of trouble. She was quite sincere, and it shakes me when I hear this from someone as young as a 19-year-old.

I had two students, about 17 years old, come watch my TV to learn what the news was about the protests. I watched the news with them; the Chinese news showed the protesters attacking the soldiers, rolling over trams, stoning trucks, etc. Essentially demonstrating how bad the people were to justify the Army's actions... An excellent example of propaganda in its basic form.

Friday, June 9, 1989 - 09:34am

Not much to report since yesterday morning. Still very peaceful in Dalian. Almost all of my information is coming from VOA, BBC, and phone calls from the states.

Yesterday I talked with Mrs *. I was surprised how candid she was with her comments. She made two excellent comments: that the Chinese people curse Li Peng, and that the Chinese are good people. I agree with the Chinese people and her.

June 10, 10:30 PM
I just got a call from Steve Fox at the US Consulate in Shenyang.

He said that I am one of 25 Americans in all of Northeast China! I told Mr. Fox that I was aware of the potential problems here in China and I was responsible for my own actions. He gave an appreciative "Thank You!" I may not fully understand but I am accepting full responsibility for my decision.

Therefore, I will have a few bags packed and next to my door (at the suggestion of Mr. Fox) in case I have to leave China in a heartbeat. Mr. Fox said that the government has ordered all students back to class on Monday, so that's the next time of concern. I have heard that 400 people have been arrested in Beijing.

One thing that was interesting in Dalian was that it seemed very peaceful; people were calm, especially this last week since "The Massacre in Tian An Men Square." But today people seemed really argumentive on the streets...almost like all that has been bottled up the last few weeks is letting go.

Finally, I have two Chinese names. The first is my nickname pronounced "da ger", which means "too big" or "too tall." And my second is "ai du hua," or just "ai hua" coming from Edward. "Ai" means love and "hua" means China; therefore my name means "love China." So I guess that means I should stick around here for a while.

Wednesday, June 14, 1989 - 17:29pm
Television. Not much has changed; they are still showing people being arrested, and their version of interrogation (no defense lawyers here, think about that).

They are also showing interviews of people on the street. I have been told that essentially everyone interviewed is supporting the government. I did hear from the teachers that one man in Dalian who spoke out against the government has been arrested.

They are continuing to show the pictures of 21 of the student leaders. These were the students, a university worker, and a researcher that did most of the organization for the Prodemocracy Protest Marches in Tien An Men Square. The government is saying these are the leaders of the rebellion and they should turn themselves in or the people should help the government find them.

There still hasn't been any English Service TV from Beijing since the Saturday Night Massacre a week and half ago. Also, there still isn't any English newspaper.

Various people are calling me, asking if I'm leaving. It's a little bit strange because I seldom get phone calls from Chinese. Sometimes because they don't have a phone, but most often many don't like to use the phone, especially to call a foreigner. I guess what's most interesting to me is some of the students who seldom talk to me, let alone visit me in my home (almost forbidden territory), all ask if I'm leaving. I assure them that I am planning to stay and am doing all that I can do to stay.

It gives them joy.

Walking around one of the local markets I still see people looking at me like a ghost, not expecting to see a foreigner.

Another feeling that I get now is that people originally expected the government to put down the protesters as soon as they started. Then the government let the people continue. More and more people joined, and still nothing from the government; in fact there was some support by parts of the government stating that the students had a significant point. Then the workers got involved. Still nothing bad from the government. Then the media were involved and still nothing from the government.

Then the government orders a halt and sends the military in, and the people join together to stop the military.

Hopes were very high that something good was going to happen! Maybe it was going to change this time. The government would listen and actually do something.

Then they did do something. They marched with vengeance and cold blood on Tian An Men Square and established martial law.

The people knew, instinctively, that nothing had changed, and quickly became silent once again.

This evening I had a student come ask me what I thought of the current situation in China. His coming here and asking me that question could get him in a lot of trouble if he were found out by the leaders of this school. Especially now, as tense as the situation is in China. Like all the other students, he's young, but he is a little different and seems to be more informed. He told me that all the students in the school were now silent about the situation and their feelings.

I essentially tried to be as fair as I

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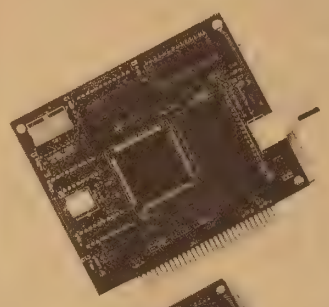

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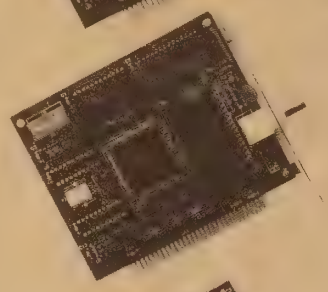

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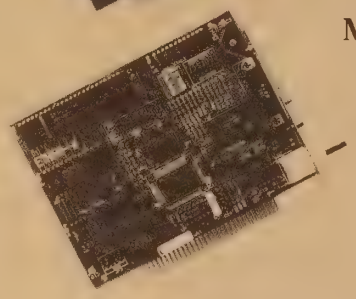

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could with what I thought and felt. I told him that he needed to watch, listen, and read as many different things as he could; his own government's media as well as that of other countries. He asked questions about the government issues and I explained how our government works, its limit on power, its balance of power, and most importantly, the way it is chosen by the people in a free election.

In his quiet way, it is easy to see or feel his pride in who he is, and he is at an age that really wants to express that pride. But he isn't sure what he should do.

Yesterday I was told by a friend of mine when young Chinese graduate from a college or university, they go to work with their bright ways. But, after a few years they learn.

They learn what?

The young learn that if they work hard they might look better than their boss and their peers. The boss will worry that he will get shown up. People will be angry with the boss and move the young man or woman into the boss's spot. At the same time punishing the boss and pushing him down.

Getting up in position in the first place, often you have to know someone. When you do move, you often step over a more deserving person, or even step on somebody. Therefore, if you come back down you're thrown to people you have been walking over.

So a young person learns quickly that if he makes waves his boss will worry and might punish him. And from an outsider's view that punishment can come in very arbitrary ways.

It's like a bunch of ducks in hunting season. When the hunter gives a duck call, it's the duck that sticks his head up to look that gets it. The smart ones just keep their face in the mud foraging for food.

I am learning this for myself.

Saturday, June 17, 1989 - 13:00 pm

Even now I am learning new facts (and not-facts) about what happened two weeks ago. It wasn't until I read an account by a student from Harbin who was in Tian An Men Square did I realize the cold-bloodedness of the assault. And I still have to be careful to use the Harbin student's account as another reference, not a sole source for reaction. It could be accurate, manufactured—or worse, understated.

When I listened to Radio Free China from Taiwan the broadcast sounded biased, but away from that of Mainland Chinese government. And add to that all the other viewpoints from other countries and their broadcasts. It is difficult to make a confident opinion, even for myself.

Last week some students put it simply: seeing is believing. And it is quite difficult to get that medium into China. But communications in China and around the world are getting difficult for a government to control. The information age, or information revolution, is helping protect those delicate human rights where they exist and create human rights where they do not exist.

June 25, 1989 - 21:32

Most of the students in Dalian colleges and universities seem to be back at school. The government has ordered all the students back to school; otherwise they will be kicked out.

I usually teach the teachers on Monday and Wednesday afternoons. Well, I no longer seem to be able to teach the teachers on Wednesdays; apparently all the teachers at this school are required to go to political class now. The content of the classes are further study of Marxism, Leninism, and the writings of Mao and Deng Xiao Peng.

My situation at this school is getting a little better. But what is really making it difficult for me to stay in China is reading the *China Daily* in English. Simply stated, it's full of lies. There is no other way to describe it: just lies. With those lies comes the rationalization of the government's actions. Like executing people for their actions during the martial law crackdown.

I was eating dinner with a teacher and his wife a few days ago. During dinner I told him that I heard on VOA that the Chinese government has made it even more difficult for people to leave China. This action seems aimed at people who want to study abroad. He jokingly replied, "That's OK, we will just stay here to fight our government." Although he was joking, his comment does have some merit. The government is removing another safety valve of promise and hope, and I wonder if the people might just turn on the government.

A student came to me at the bus terminal downtown yesterday. He approached me a little timidly and asked where I taught, and I told him.

After a moment, he asked, "Why are you still here?" I found it was a little difficult to answer him. I couldn't find appropriate simple words that connected with my feelings. I finally replied, "Because I believe in the Chinese People." His face quickly lit up and he appreciatively nodded his head. This is all that was said. ■

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A New Paradox— Fit AND Fat!

A Look At Borland's Paradox 3 DBMS

By Warren Sirota

The newly released *Paradox 3* from Borland is a major upgrade to the oft-praised *Paradox 2* relational database management system (RDBMS). This program has attracted attention for its unique user interface, automatic network support, extensive Query-By-Example (QBE) facilities, and programming language (PAL). This is not another *dBASE* clone, but it plays in the same league. It gives end-users the ability to define and manipulate their own databases and programmers the ability to create turnkey applications that can be run by someone with little or no *Paradox* knowledge.

Those of you who are already *Paradox 2* users and are considering upgrading need not consider long. *Paradox 3* adds multi-table forms and reports, graphics, crosstabs (a data analysis tool) and many useful extensions to PAL. The upgrade costs $175, and programs and data are all fully upward-compatible (in non-jargon: your *Paradox 2* stuff will run just fine under *Paradox 3*, but not vice versa).

In developing several applications with *Paradox 3* over the past two months, I have found it to be a powerful tool, although many opportunities for improvement exist. In the final analysis, most of the problems I encountered may be classified as performance problems, although some stem from awkward and poorly performing programming workarounds to accomplish tasks that, it seems, should be more straightforward. Creating databases and forms and setting up data entry screens in *Paradox* is a breeze, and its multi-table forms make even relational data editing easy, which is quite an accomplishment. Graphics are extensive; the network support is elegant. However, if your application requires custom data validation or certain types of relational reports, then be prepared for some real effort. These features and problems are examined below in greater detail.

The Components Of Paradox

When you first enter *Paradox*, you are presented with a Lotus-style menu across the top of the screen that gives you access to the program's major modules:

View: allows examination and changing of data.

Ask: the QBE facility allows you to ask questions about your data. Most table operations (such as "Change all values of country that are now blank to be 'USA'" or "delete all records dated before Jan 1, 1989") are performed through this facility.

Report: a relational report generator.

Create: allows you to build new tables.

Modify: allows you to sort and restructure tables.

Image: allows you to call up different "images", or ways of presenting the data. You can pick different forms to view or edit through or you can design and view graphs. All standard graph types are supported, as well as some deluxe items like 3D bar charts. Legends and titles can be customized.

Tools: various useful utilities.

Scripts: record, write, or edit scripts (programs) in the Paradox Application Language (PAL).

Help: an extensive, context-sensitive help system, always accessible through the F1 key (unless you change this through programming).

Network Support

Paradox implements network support through the use of the Coedit key and command. When a user is viewing a table either through a form or in the spreadsheet-like "table view," (s)he can press either the Edit key (F9) or the Coedit key (alt- F9) to change the data. Edit will place a full lock on the table if no other users are accessing it at the time, or tell the user who is using the table if that is the case. A full lock prevents all other users from accessing the table.

Coedit, on the other hand, will let multiple users access and change the table simultaneously. People looking at data on their screens will automatically see the changes that others make, albeit not instantaneously (*Paradox* allows you to set a refresh interval that determines how frequently your own display is updated).

Paradox also automatically puts the least restrictive locks necessary on all other database operations, resulting in a system where network operation is safely supported without the necessity for any special programming. This is a large advance over the *dBASE* family where programmers must code all of these locks explicitly and test them thoroughly on a network.

Multi-Table Forms

Screen forms for data entry and display are easy to create, especially when related data from several tables needs to be edited together. For example, Figure 1 shows a two-table form. The top half of the form shows data about a company, and the bottom half of the form is a scrolling table of all contacts within that company. Because companies and contacts are kept in different tables, there is no limit on the number of contacts that can be kept for each company.

Not only is the form easy to design and use, but it maintains "referential

Paradox automatically puts the least restrictive locks necessary on all database operations while editing, resulting in a system where network operation is safely supported without the necessity for any special programming.

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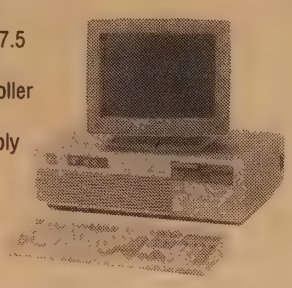

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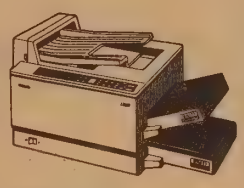

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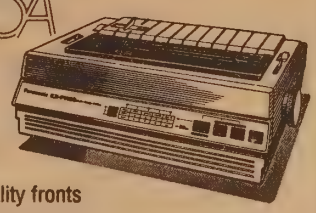

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- 192 cps
- The KX-P1180 features paper parking, multiple paths, perf cut, landscape feeding and more

$179

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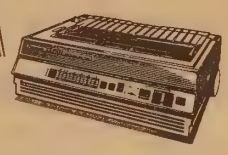

KX-P1124

- "EZ-Set" Front Panel Controls over 20 Functions!
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- 192 CPS; 63 CPS LQ
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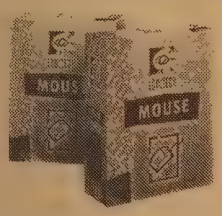

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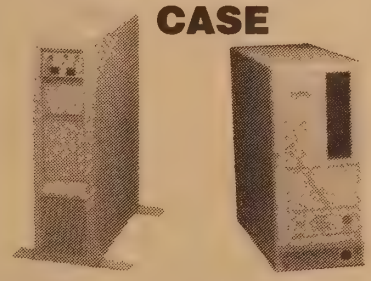

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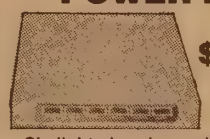

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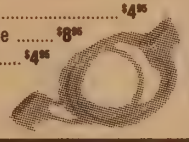

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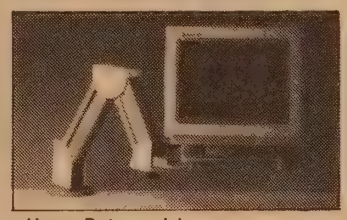

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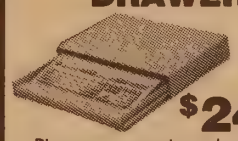

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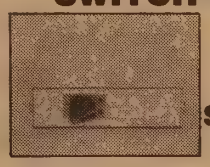

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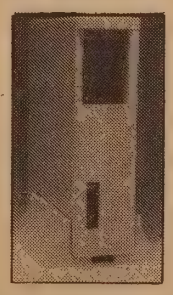

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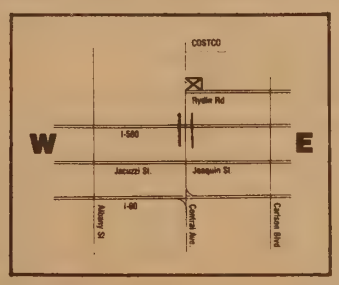

integrity" between the Contacts file and the Company file. This means that you can't delete the Company record if there are any Contacts belonging to that company (so you have to delete the Contacts first). It also means that, for instance, if the Contacts are related to the Company through the Company Name field, then changing the Company Name on the form will change it in all of the related Contacts records as well as in the Company record.

Multi-table editing and referential integrity requires extensive programming in most other languages.

Data Validation

The ability to specify validity checks and default values at the table level without any programming is also a major boon. If there are certain "rules" that your data needs to always obey and that must always be checked in data entry situations, why make every program that supervises data entry check the rules again? Instead, *Paradox* allows you to build those checks into the system itself. Most useful among these checks is the ability to specify a look-up table. This way, if I were entering a new Company and I wanted to enter a state abbreviation that I wasn't sure of, I could move to the State field and press F1, and a table of State abbreviations would appear on the screen. I could then move the cursor to the appropriate abbreviation and press F2, and I would be returned to my original form with the abbreviation filled in.

This is a very useful facility, although I would like to see a little more development in this area. First of all, there is no provision for "optional" validation. In the example above, if I were to enter a nonexistent state abbreviation, *Paradox* would prevent me from leaving the field until I had either entered a correct value or blanked it out. It would be nice if I could specify that the States table was for help but not mandatory validation. That way, I could maintain the power to allow exceptions but not lose the look-up table.

The automatic validity checks also provide the ability to specify minimum and maximum values for numeric fields and default values to be used if the user enters nothing.

Suppose, though, that you have a more complicated validity check. In an application that I did for Oakland's Jon Peddie Associates, we were keeping track of information about graphics cards. Here it was important to calculate default values of some fields by mathematical operations on others (the number of bits determines the number of simultaneous colors available, for example). The regular *Paradox* validity checks won't do this for you. The proper tool for this job is the Data Entry Toolkit (DETK), an object-oriented set of scripts that Borland provides to help the programmer control every aspect of the data entry process. The DETK allowed me to create an "exit script" for the Bits field, so that every time my client edited the record (under control of the Toolkit only) and left the Bits field, my exit script would be called to check whether the "Simultaneous Colors" field was set correctly, and, if not, to ask for a confirmation that the field value should be changed.

In general, the DETK allows you to specify "arrive" and "leave" scripts for every field in your table, as well as "table arrive" and "table leave" scripts that are handy when used with multi-table forms. It also allows you to completely customize the meaning of the various keys within the editing process. Although it is a little difficult to get the hang of programming the DETK at first, it allows you to create highly structured and easily modifiable code. This is because you don't need to write any code to control the order in which things happen—the DoWait command in the Toolkit takes care of that. You end up writing very short, modular scripts that are called by DoWait at the appropriate times.

This is a great concept, but it is marred by some built-in clumsiness in the programming process (this is definitely not a facility for the nonprogrammer) and molasses-slow performance in actual execution, even on a fast machine with gobs of memory. Going from one page to the next of a multi-page form is nearly instantaneous in "native" *Paradox*, but under control of the DETK it can take several seconds. There can be quite perceptible and annoying lags moving from one field to the next as DETK executes a field leave script, even if that script is only a few lines of relatively trivial code.

If Borland can speed up DoWait's performance and streamline the setup process for it, they will have a killer facility on their hands. In the meantime, we'll just have to wait. And wait. And wait.

Reports

The *Paradox* report generator is quite powerful, allowing you to easily create reports with many levels of grouping and sub- totals, ordered arbitrarily, with data coming from many linked tables. In most situations, it will allow users to quickly produce exactly the type of output they are looking for. There is certainly room for improvement in the report facility, however. In fact, it could learn some lessons from *Paradox* forms, because the report facility is weak exactly where the form facility is strong. In forms you have a master table linked to various linked "detail" tables. In reports, the main table for the report must be the detail table, not the master table. This presents problems when the master table is linked to more than one detail table (as in creating invoices, when you might have a master Companies table and detail tables for Payments Received and Charges). The problems are not insurmountable, but they are more of a dance than one would like.

```
Editing Company info.  F3/F4 to switch between boxes, Ctrl-Z Zoom
[F2] when done, [F10] for menu

Company Name: Monster Graphics Cards, Inc.
   Address 1: Suite 330
   Address 2: 2105 Luna Rd.
              Caridine          , Ca      94006        Country:

       Phone: 818/345-6789                800 Number: NA
         BBS:                          Technical service:
       Telex: 123456
         FAX: NA

Number of employees:     40  Factory size:        Date founded:  1/01/83
      Annual sales:                                  Ownership:
    Est. mkt. size:

                          Contacts in Company
Name                      Title                    Extension     Rpt. Contact?
Bill Cohn                 President
Evelyn Roeloeffs          Sales
Chip Morris               Tech. Supp.
John Keaty                VP Mktg                                        Y
```

Figure 1: A multi-table form

Wish List

When reviewing software, I prefer to review what's there rather than what I wish were there. And yet, there are several areas of *Paradox* I have not yet mentioned where performance and convenience could be significantly enhanced over what exists.

The first of these areas is the current nonexistence of support for "filtered" (or subset) views of the data.

The ability to specify validity checks and default values at the table level without any programming is also a major boon.

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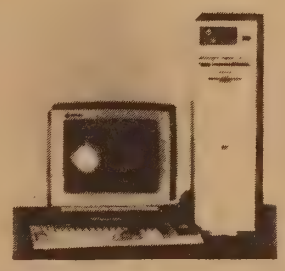

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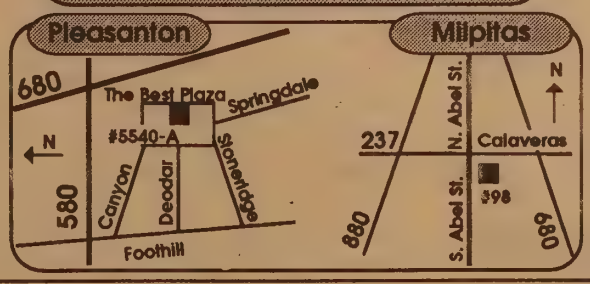

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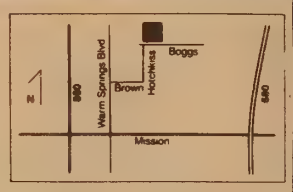

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All *Paradox* queries extract the results from your table, creating a new table called the Answer table. In many cases, it would be easier for the user to deal with if, instead, a removable filter was placed over the original table, allowing the user to see only those records that fit the conditions.

Suppose, for example, that I want to look at all Companies in my database with more than 40 employees. It is easy to formulate a *Paradox* query (using the "Ask" module) to ask this question. So all the company records that answer the question are copied to a table called the "Answer" table. Great. So now I want to look at these companies using the form in Figure 1. But the Answer table has no form definitions. They have to be copied from the Company table to the Answer table. And ditto to report off of the Answer table. But maybe the Answer table should be renamed first, or else all the answers and tables and forms will go away with the next query. This is all doable, but it is a lot to expect of the average user.

Not only is there an ease-of-use problem here, but there is also a performance issue. If you are working with a large database, and you do a query that selects 75% of that database, then you are going to end up with two large databases on your disk where before you had only one. Of course, the second one is only temporary, but it took all that time to physically create it, writing all those records to disk. And what if you don't have enough disk space for the temporary database? Tough. An allied issue relates to the ordering of the records and indices. In *Paradox*, you can sort a table in any order, or you can specify any combination of fields as key fields. Unfortunately, you can't do both. This presents problems in a relational context, where you frequently need to use keyed tables. If you want to view a keyed table in any other order than its keyed one, you must use "Ask" to make a copy of the table. Of course, you'd better be careful about making changes, because you'd be changing the copy, not the original. This is particularly a problem because keys, as traditionally used in databases, are arbitrarily assigned by the program, reflecting the order of data entry rather than a natural viewing order. Developers note: when designing related tables, it may be best to leave the "master table" unkeyed, giving you sort flexibility, and to only key the dependent tables (even if it imposes a non- relational master-slave view on things).

There is yet another ordering problem in that you cannot create indices or orders based on user-defined functions. To get back to the Company example: we wanted company names to be sorted independent of capitalization (e.g., "Acius" followed by "ACS" followed by "Alcoa"), and yet we didn't want to keep only capitalized forms of the Company names in the database (they look bad on form letters). In order to accomplish this ordering, we had to maintain an additional field in the database to hold the capitalized version of the company name, and then to resort the master table (which we left unkeyed) periodically to preserve the sort order. Rather perverse, actually.

Not only is the form easy to design and use, but it maintains referential integrity. Multi-table editing and referential integrity requires extensive programming in most other languages.

Summary

Paradox 3 is a product with a unique vision. In most ways, that vision is implemented admirably, greatly cutting down on programming time for certain types of functions. In other ways there is still work to be done. *Paradox 3* is a capable tool in itself, but I'm hoping that the next version will address the issues raised in this review. ■

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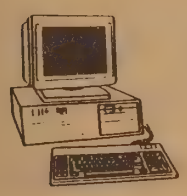

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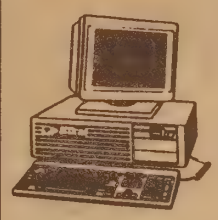

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Art by Rick Probst of Pacific Motion, designed with an Amiga and Deluxe Paint 3.

The Amiga: Hollywood's Best-Kept Secret

Or—Pacific Motion: Two Guys And An Amiga

By Ben and Jean Means

"Art is the ultimate weapon," says Terrance McKenna, and the Amiga running *Deluxe Paint 3* is the weapon of choice for Burbank design house Pacific Motion.

Once the megabuck graphic workstations ruled Hollywood. Designers and producers assumed that serious computer graphics design required a *serious* six-figure workstation. But more is not necessarily better, and Pacific Motion's Rick Probst has found that his Amiga 2000 has all the power he needs to design impressive graphics and titles for film and television.

Traditional cel animation and high-end graphics workstations like the Quantel Paintbox still provide his final output. But before he hires an animator or books time in an edit bay, Probst has storyboarded the look, color, and movement of every graphic element on the Amiga—and saved thousands of dollars in the process.

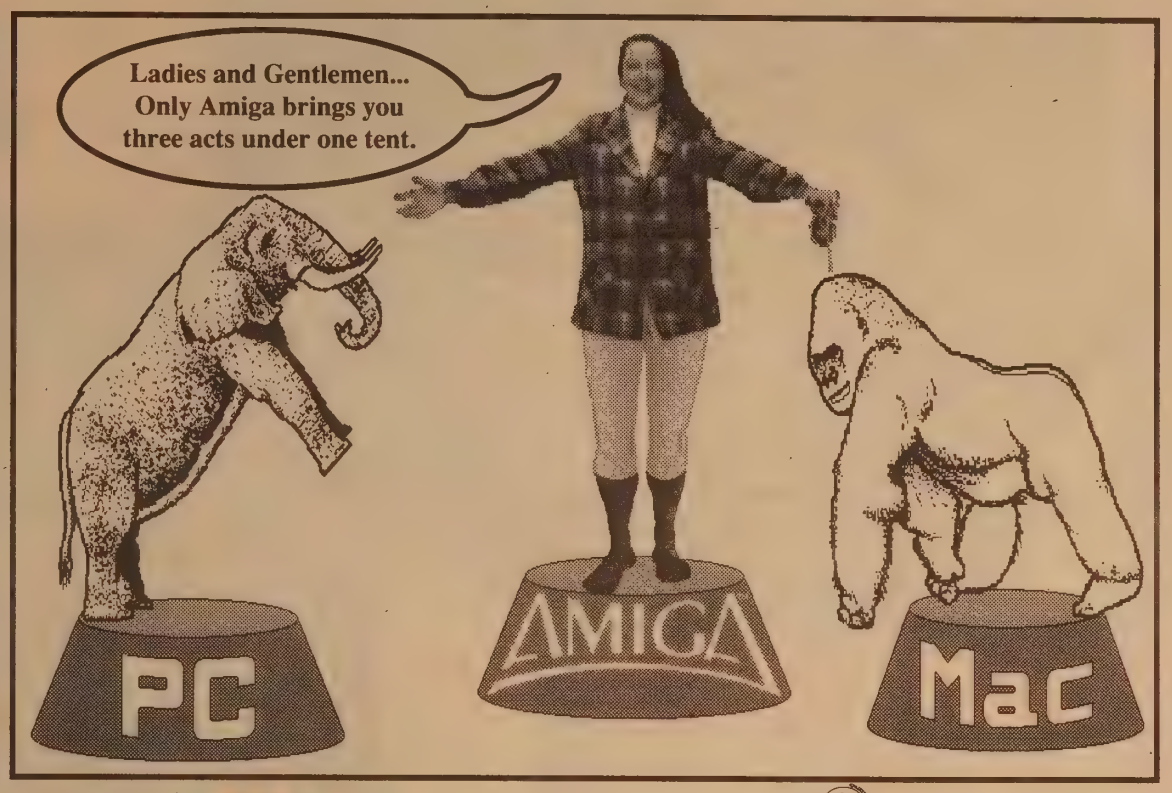
Storyboards are a set of still drawings that show the key frames in a motion sequence; the director and producer then have an idea of what the finished graphic will look like, so they can suggest changes or approve final production. Only three years ago, when he worked at Cimarron Productions, Rick Probst slaved to produce storyboards the old-fashioned way—with pencils, markers, and airbrush.

Probst was drawing at home on his C64 when he first realized that computers could take the drudgery out of tedious storyboarding. But his bosses at Cimarron wouldn't fund his idea, so Probst turned in his resignation, bought an Amiga 1000 and founded Precision Image with producer Robert Visty to produce movie graphics in late 1986. Two years later, they teamed up with Barbara Eddy to form Pacific Motion and expanded into television broadcast work.

Robert Visty of Pacific Motion: "The value of the Amiga over traditional methods is that I can execute an idea very quickly and get it in front of someone. People see what they're going to get, they approve things quicker, they make changes faster, more projects get through to completion."

Their Amiga-based design business is thriving, and their credits include promotional graphics and titles for films like *Cocktail, Young Guns, Can't Buy Me Love, Three Men And A Baby, Cinderella,* and the upcoming DeNiro-Fonda film, *Stanley And Iris.* This fall you can see their designs on broadcast TV with the Disney production of *Chip And Dale's Rescue Rangers, Moments To Love,* and *Rollergames,* which will premiere opposite *Saturday Night Live* nationally.

Rick Probst and Robert Visty have



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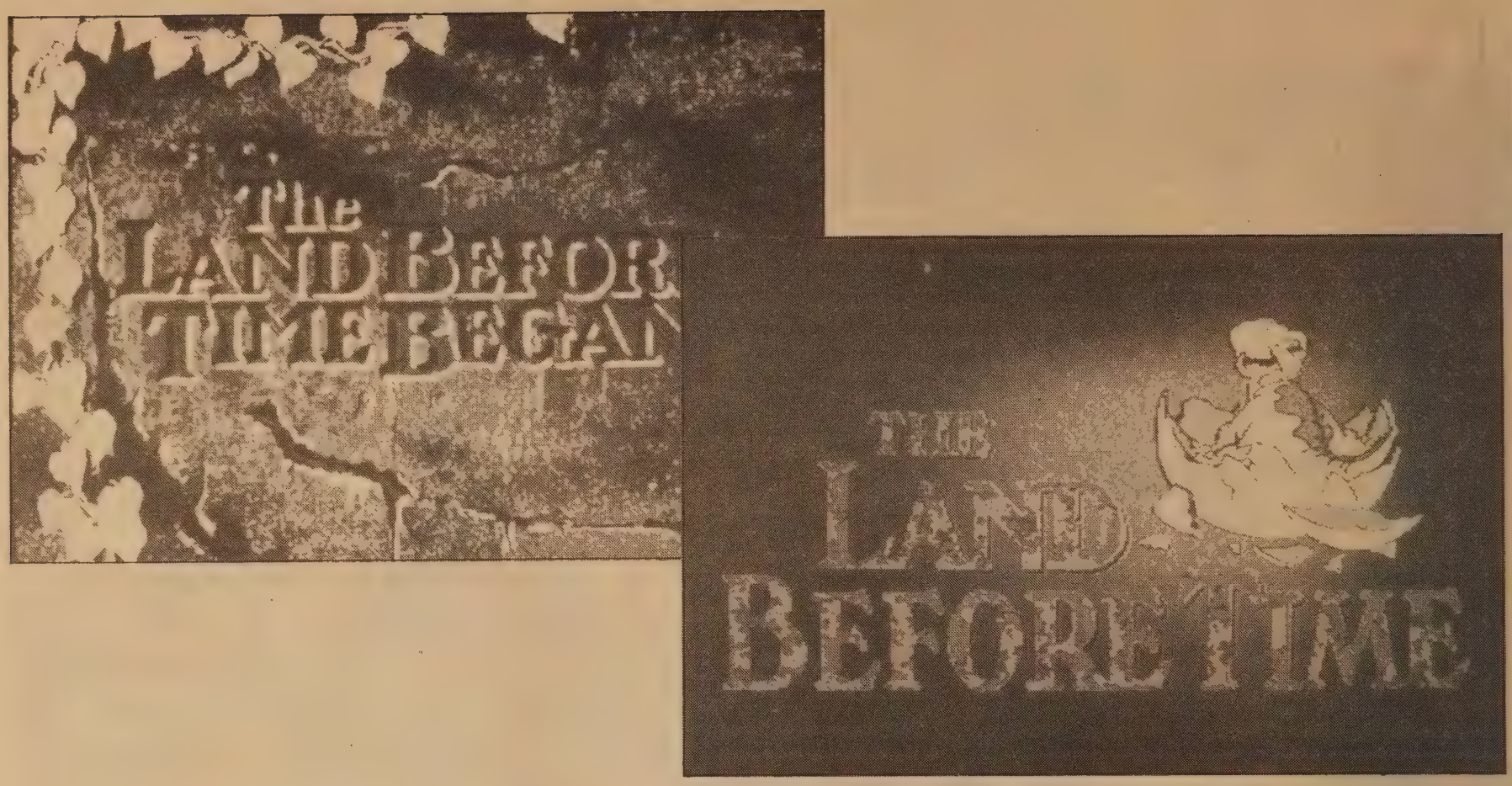

pioneered a new form of storyboarding on the Amiga, and they shared the secrets of their success with us at their Burbank offices.

What are the advantages of using the Amiga for storyboarding instead of traditional techniques?

Rick Probst: Traditionally, designers drew storyboards with an airbrush, color pencils, and markers. One advantage of the computer for storyboarding is that you've got a little of each frame in the next frame and the previous frame. So when you're working with a title zoom, for example, you can change the title's scale and stamp it down over each frame of your storyboard to create the zoom quickly and easily.

If I was airbrushing this same zoom, I would have had to cut friskets for each scale of type and airbrush it. It's slow and tedious. Then if I pull the frisket off, and it doesn't look good or I want to change the color, I've got to put my stencil back together again and start over. It's messy, it takes all night, and you only get one storyboard done.

On the Amiga, I can do three or four storyboards in the time that it took me to do one with traditional methods. If another designer comes in with just one board, and you come in with multiple ideas, then you've got a distinctive advantage. So that's why I got into the Amiga in the first place—because I was doing a lot of storyboarding. I discovered the Amiga was a better way to do it.

Has the Amiga given you an edge in this competitive industry?

Yes, with quicker turnaround time for one thing. From the day of getting a job to delivering airbrushed storyboards, I used to ask for three days and hope that we already had a design idea. With the Amiga, I can usually show the next day, so the Amiga takes two days out of the cycle for rapid turnaround.

In this town, turnaround is everything. They walk in the door on Monday and need finished titles on film by Friday! It's hard, but it can be done. We like to have a little more time to refine things, but often the client needs to deliver product to networks to meet certain time slots or to theaters for a new movie release. So you've got real deadlines that have to be met.

Robert Visty: To sell a design to a producer, you first have to visualize it for him before he'll put a dollar on the table and say "Go ahead and do it." The value of the Amiga over traditional methods is that I can execute an idea very quickly and get it in front of someone. People see what they're going to get, they approve things quicker, they make changes faster, more projects get through to completion.

Some of our clients really specialize in last minute changes, so the Amiga has helped us quite a bit there, too. You may have one producer who is working up in Canada while his director may be over in New York. With this system, I have no problem making multiple copies of a printout within minutes and shipping it out overnight, wherever they are. Then everybody can get on the phone and they're all looking at the same thing. If you're working with an illustrator, you have to send it out to have it shot, get the negatives processed, extra prints made—you lose at least a day. The Amiga removes that time loss from the process and helps us move a project along.

As a producer, I love the Amiga because when I budget a project, I know all my parameters beforehand. So I have no problem budgeting something, and I have no problem bringing it in on time, which is 50% of keeping your client satisfied.

You use Deluxe Paint for most of your design work. How have the animation capabilities of DPaint 3 changed how you do business?

RP: *DPaint 3* is just killer. I bought an Amiga to run *DPaint*, and it just gets better and better and better. You'll have trouble finding an animation program this powerful anywhere. I love it. I used it for *Rollergames*, which premieres this fall, and it helped land the account.

RV: *DPaint 2* allowed us to make a still frame storyboard, but *DPaint 3* has allowed us to do what we're calling temp animation, which is a moving video storyboard. Nobody else in the business is doing that.

Using traditional techniques, a moving storyboard costs a lot of money, to hire an animator and rent an edit bay just to get the project to that first stage. So you have to have a client who is already committed to the project.

I don't have to do that. For just our original design fee, I can now create a moving storyboard that the client can take home on 1/2" video tape, or it can be shipped to New York for somebody else to approve. Sound people can start working the sound track to

Visty: "Deluxe Paint 3 has allowed us to do what we're calling temp animation, which is a moving video storyboard. Nobody else in the business is doing that."

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it, and they can feed back timing or effects changes to me before I go into final production. The creative process gets a little more cohesive just because everybody has something very clear to look at.

So it's moving storyboards on video tape that's really helped us get an edge on our competition.

Once the client approves the storyboards, how do you use these Amiga designs in the edit bay?

RV: You can dump RGB directly into the Paintbox and then just clean up the edges, rather than having to repaint an entire image. With the high cost of production, you can save three or four hundred dollars every two or three hours because you don't have to rebuild your graphic.

Are a lot of the other design houses using Amigas or are they going more toward the Mac II and IBM?

RV: Unfortunately, the Mac II has the predominant awareness in the business. The industry is very aware of the Mac II and all its capabilities, and a lot of people have them. The problem is, most of the programs for the Mac aren't as intuitive as *DPaint*. That's one of the advantages of *Deluxe Paint 3*: the technology is never in Rick's way; it is helping him to apply the design that is in his head.

Is the Amiga better for what you do than a more expensive machine?

RV: Yes; the cost of Mac IIs would greatly affect our creativity. We all have Amigas at home. If I were spending money on Mac IIs, I just couldn't buy two or three of them for each of us. And that is really critical, because the ideas don't stop just because you leave the office. If Rick can sit down at home and spend 20 minutes, a half hour, an hour executing an idea, then it's *done*. I can go sell it; those dollars are in our pocket, we've solved that project and have time to get on to the next one. There's no way that I could afford to have a Mac II on everybody's desk here *and* at home.

Even if you had a Mac II, would that be high enough quality for the final output you need?

RP: Probably not; the difference between 256 colors on a Mac II [in 8-bit color] and 16 million colors on a high end workstation is pretty broad. When you see our product reel, the Iris graphics with 16 million colors and 3,000 lines of resolution look superb. Next to that, 256 colors and 640 X 480 res is going to look pretty limited.

Since it's not for final output, why should I spend the money for a Mac II when the Amiga gives me the design tool I need? The Amiga has all kinds of growth potential, with UNIX support coming out and X-Windows.

The artist in the next office has an Iris workstation, running his own software called Prism. I could create Amiga files of 3D objects in the *Sculpt 4D* ray tracing program, hook up an Ethernet, send those objects to his Vax and render them in about a minute a frame. We've both been busy so we haven't installed the link yet, but once that happens, the possibility becomes reality of actually creating front-end workstation design on the Amiga.

Would you prefer to own your own high-end graphics equipment?

RP: No, that's why we're using the Amiga for design. We're not going to buy an Oxberry downshooter animation system, and we're not going to buy a Paintbox. When you buy a $200,000 piece of hardware, that's what you end up selling. We can sell any piece of hardware because we know where to go find it and use it and get things produced on it. So we can sell any look and do what designers traditionally do—which is solve a communication problem, rather than be constrained by a style or a piece of hardware.

RV: With each project, we take on whatever staff and expertise we need to for that project, and then disperse them. Part of our strategy as a design firm is to remain a design firm; if I own high-end, high-cost equipment like an animation stand or an edit bay, then I'm in the business of selling that equipment and keeping it paid for. But then I'm not a designer anymore, plus I have to work on the machine I've bought.

As a designer, I want to work on whatever is out there, whenever I want to, whereas a lot of post production houses have design teams, but then they're always designing for the equipment that they have.

We'll design something on the Amiga, produce it partially on film, take the film into an edit bay, and do the effects with it there. It gives us a lot of design latitude that other people can lock themselves out of by being tied to one set of machines.

What has the Amiga done for your business?

RP: It's been the ultimate design tool and I'm loyal to it for that. It does everything; when I want to work on an idea, I can pretty well see what it's going to look like. I can do things I just couldn't do before. It's a great decision-making interface, and I think it's going to be hard to beat. ■

Copyright © 1989 by Ben and Jean Means. Ben Means is tired and wants to eschew language in any form, written or spoken. Instead, he plans to have a direct MIDI link bionically installed in his medulla oblongata so he can better communicate with those he knows and loves—synthesizers. Jean Means loves Ben anyway.

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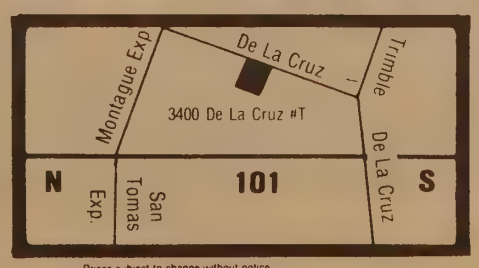

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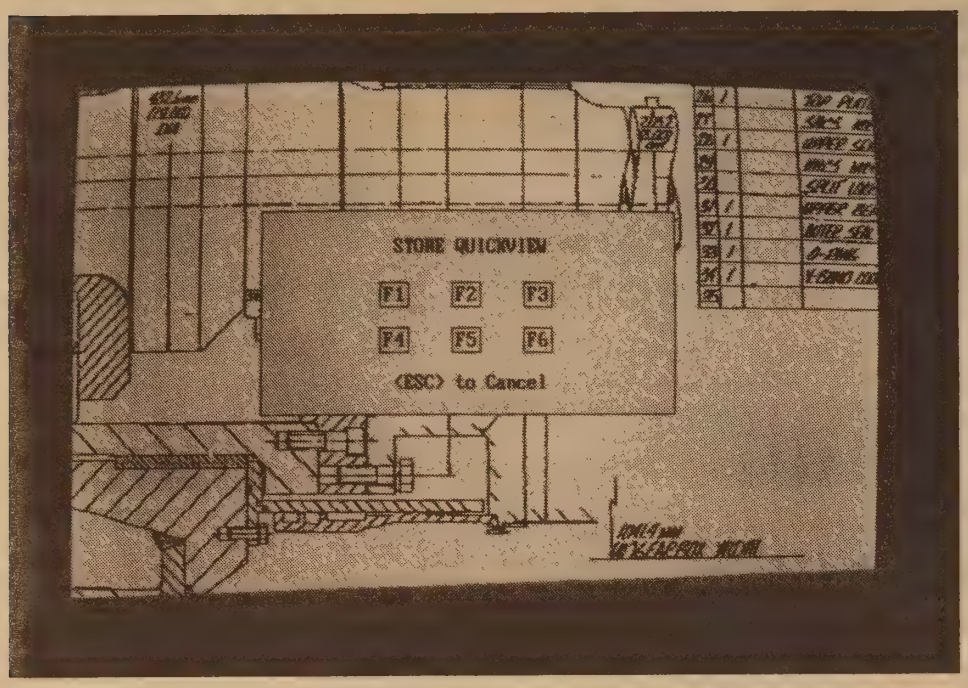

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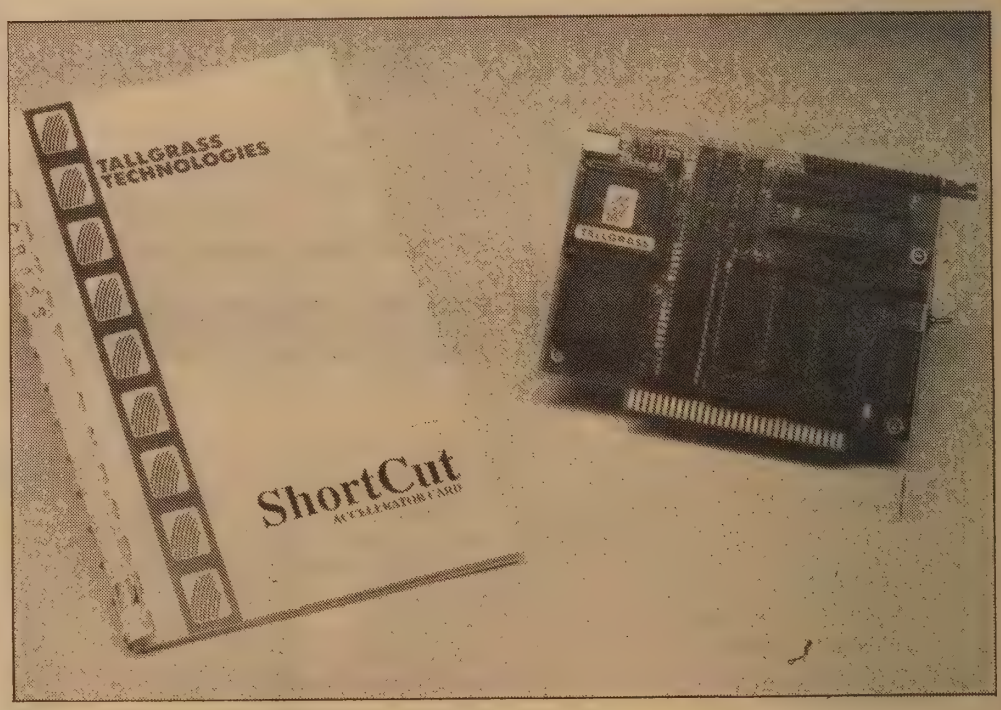

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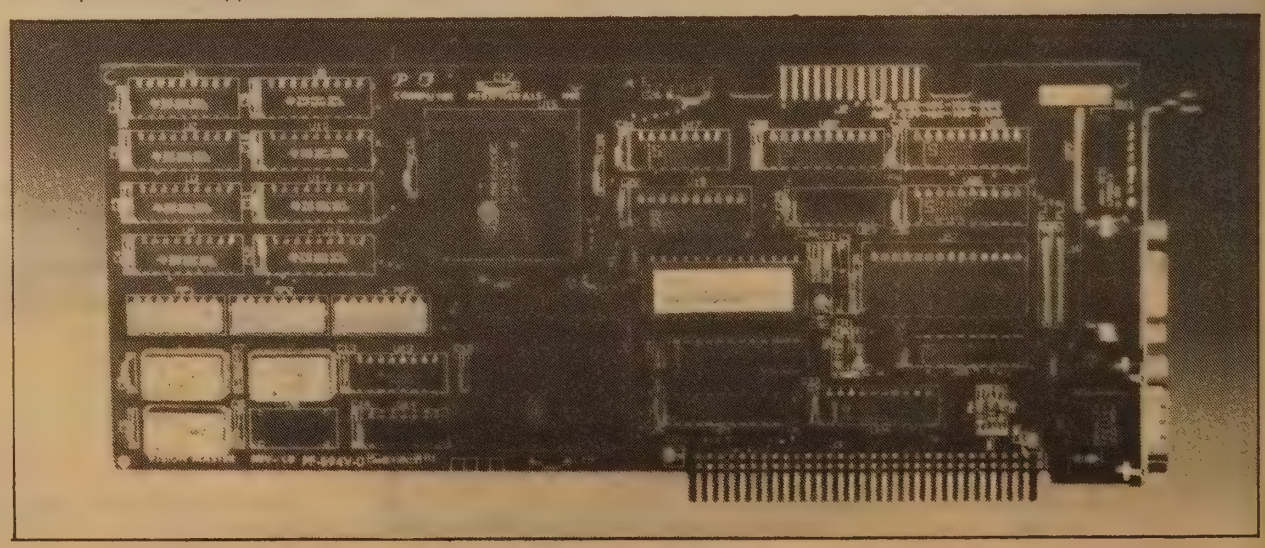

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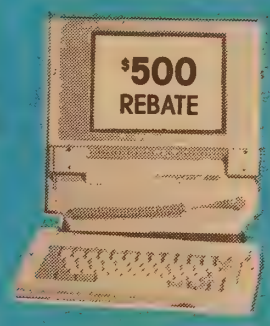

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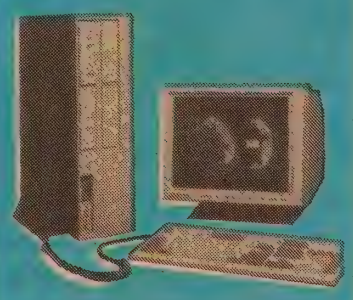

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Lotus Chairman Manzi:

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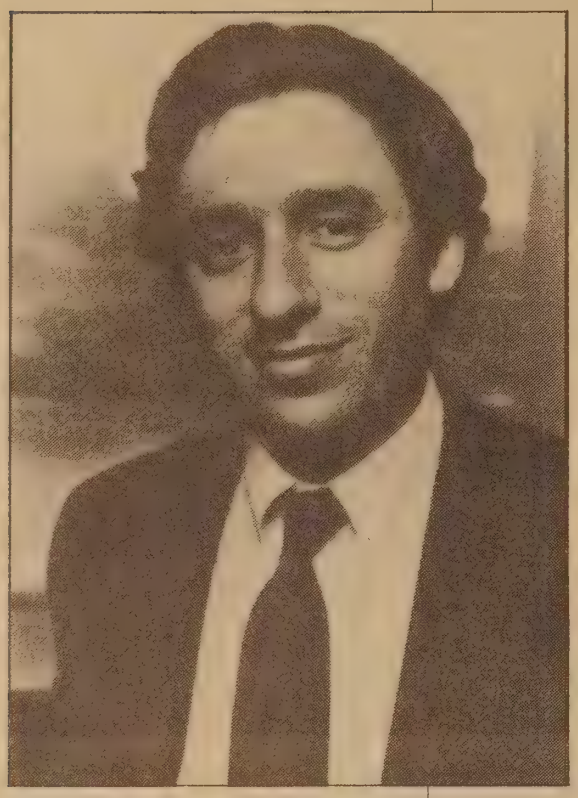

(Adding momentum to the move toward UNIX in the corporate marketplace, Lotus Development and Sun Microsystems announced July 18 that Lotus would be developing applications for all three Sun platforms: SPARC-based RISC (both Sun and cloned machines), Intel 80386-based, and Motorola 68XXX-based. Although Lotus declined to mention specific products, everybody's mind seemed to be on 1-2-3*, the staple of the DOS-based business world.*

Lotus has already announced 1-2-3 *for OS/2 and has a development agreement with NeXT. The Sun announcement addressed one of the biggest impediments to widespread acceptance of UNIX for many corporate users—the lack of mainstream off-the-shelf applications. Its impact on the future of OS/2 at this point is a matter for speculation; the issue that's being heavily emphasized is interoperability, i.e. letting the customer run the desired applications regardless of operating system and across many vendor platforms.*

Lotus chairman/CEO Jim Manzi discussed some of these issues in a recent speech to the Software Publishers Association, and his remarks are reprinted here with permission.

There are two ways to approach the UNIX question. The first is to assume that the hardware market is going to inexorably move to RISC-based processors. The speed of RISC chips is so overpowering that UNIX is the only operating system presently fully constituted to deal with it. No other operating system can scale with the power of chips, RISC or otherwise.

Let's remember OS/2 for 386 is still a fiction. And since UNIX is available today, many companies are revamping their software to take advantage of the performance of a RISC-based machine. We're interested, however, in all three Sun architectures.

The second way to approach the UNIX question is to pay less attention to the PC world's preoccupation with speed and power and more attention to the UNIX world's capabilities for simpler communications and multitasking with an underlying assumption of speed and power. The former is what we've convinced John Q. Manager he really wants. The latter is what he really wants.

"We need to pay less attention to the PC world's preoccupation with speed and power, and more attention to the UNIX world's capabilities for simpler communications and multitasking, with an underlying assumption of speed and power. The former is what we've convinced John Q. Manager he really wants. The latter is what he really wants."

As developers, it is a little disingenuous for a company that promotes a particular O/S religion to downplay UNIX while broadly claiming for that company's O/S the capabilities UNIX delivered years earlier. A little honesty might help here.

Our customers care more about interoperability—the ability to use the same applications software on lots of different machines with little reprogramming. They don't give a damn about proprietary hardware. Or rather, they don't want to.

Right now there are more than a thousand UNIX applications. But most are either technically oriented or just too difficult for the average user of DOS or Macintosh software. In terms of mainstream software, UNIX lags way behind. It is up to us to redress that balance.

At Lotus we have approached the UNIX question as neither gimmick nor grail. We approach it as a major operating system that has virtues on a par with DOS, OS/2, and the Macintosh. We are developing *1-2-3* for UNIX. We took a look around us and saw credible customer support for UNIX already in existence and growing.

UNIX as a developers' platform should be a playing field for our industry to concentrate on. Our assumption is that the problems that hinder widespread acceptance of UNIX are being fixed.

Its biggest drawback is its interface. It will get in line and receive a facelift even as other operating systems and applications software do as well. In fact, many doctors have signed up for this task.

We think the work NeXT has done is especially interesting stuff. At Lotus, we're excited about this opportunity. ■

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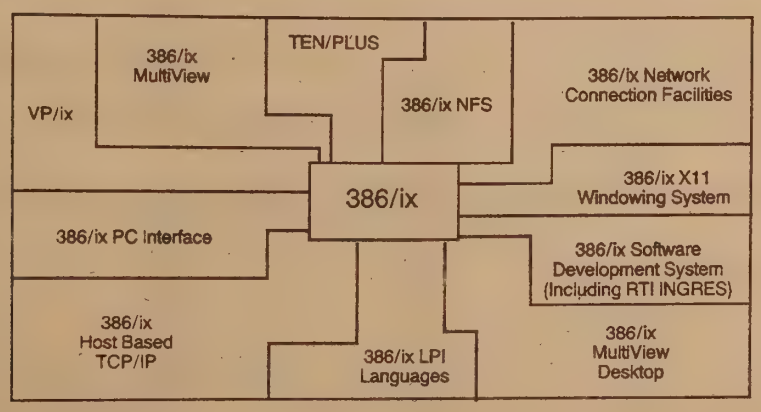

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BY BENNETT FALK

In The Land Of Dot

Exploring The UNIX File System

By Bennett Falk

The Queen of Dot looked down from her throne on a young man in a polo shirt who shifted uneasily from foot to foot.

"Your Highness, I'm here to ask for some money."

"Who isn't?" the Queen of Dot replied. "What exactly do you intend to do with this money you're asking for?"

"I propose to circumnavigate the Land of Dot and the file system of which it is a part. I hope to produce a complete map of the universe in which we live."

CP/M seemed to have no concept of directory at all; there were simply files strewn across a disk, and if the name of a disk was unknown, its contents could not be examined. The DOS and VMS listings had evidence of directory hierarchies, but in both cases the directory hierarchy had to fit on a single disk.

The sound of jocular murmuring filled the room. The Queen of Dot fixed the would-be explorer with a steely eye. "The Land of Dot and its file system are one, you impertinent young man, and they are both flat. Do you hear me? Flat! The expedition you propose would surely fall off the edge of the disk drive on which this kingdom is situated."

"But, Your Highness, surely the land of Dot is not as flat as you maintain. We know there are directories below our own."

"Certainly there are directories below the Land of Dot, but the fools who descend into them never return. I tell you the subdirectories are a pit."

"Perhaps those who move to subdirectories simply lack the means to return to the Land of Dot. Who among Your Highness' advisors knows how to move up a directory?"

One or two of the Queen's attendants broke into giddy laughter, but the Queen ignored this breach of decorum. "Explain yourself," she demanded.

The explorer continued: "Your Highness, I have experimental evidence that there is a directory above the Land of Dot, and I believe we have the means to go there and return.

"First, we know that the command 'ls' produces a kind of map of the Land of Dot. That command produces a list of the files and subdirectories in our land.

"My friends and I have recently discovered the '-a' option for 'ls'. This command, 'ls -a' reveals parts of Dot we had never seen before. In particular, it shows us directories named '.' and '..', and when we used 'ls' to examine those ('ls .' and 'ls ..'), we discovered even more remarkable things.

"The directory '.' is the Land of Dot, and 'ls .' shows us a map of Dot! Furthermore, the directory '..' seems to be a directory above the Land of Dot. When I issued the command 'ls ..' a map was produced that, in addition to many strange names, contained the name "Dot", our own land.

"I submit, Your Highness, that the Land of Dot is a directory in a hierarchical file system and that we can move about freely in this file system. One of my more adventurous colleagues has already traveled to the directory above the Land of Dot using the command "cd ..." He remained in that strange land long enough to perform a few experiments before intense dizziness forced him to return with the command "cd Dot".

"His experiments suggest many things. In the directory above ours, there are also entries for '.' and '..'. Using the 'ls' command again we were forced to revise our theory of the meaning of these two entries. We now believe '.' simply refers to the current directory, whatever it happens to be, and not, as we first thought, to the Land of Dot itself. Further, we believe that '..' refers to the parent of the current directory. Finally, we are convinced that there is a directory above the directory above the Land of Dot."

"My research convinces me that the file system in which we live is shaped like an inverted tree. Somewhere above us is a root directory whose subdirectories spread out like branches until they end in leaf directories somewhere below us."

Stunned silence followed this declaration.

The Queen finally broke the spell. "We have heard these outlandish stories before. The archives are filled with fanciful tales about hierarchical file systems." She clapped twice and blue-robed priests came forward with trays on which yellowed stacks of ancient fanfold paper sat under glass lids.

The young explorer examined the printouts and recognized them as directory listings from many different operating systems, CP/M, DOS, the Mac OS, and DEC's VMS. How they had come to the Land of Dot he had no idea, but their evidence was certainly daunting.

CP/M seemed to have no concept of directory at all; there were simply files strewn across a disk, and if the name of a disk was unknown, its contents could not be examined. The DOS and VMS listings had evidence of directory hierarchies, but in both cases the directory hierarchy had to fit on a single disk. One's home disk could be explored, but again, there was no access to foreign file systems without some knowledge of the name of the disk on which it resided.

The Queen chided the explorer, "We know that Dot Land is a directory and that it is situated on a disk drive of some sort. Legends tell us of other disk drives, other devices. But those disks are separated

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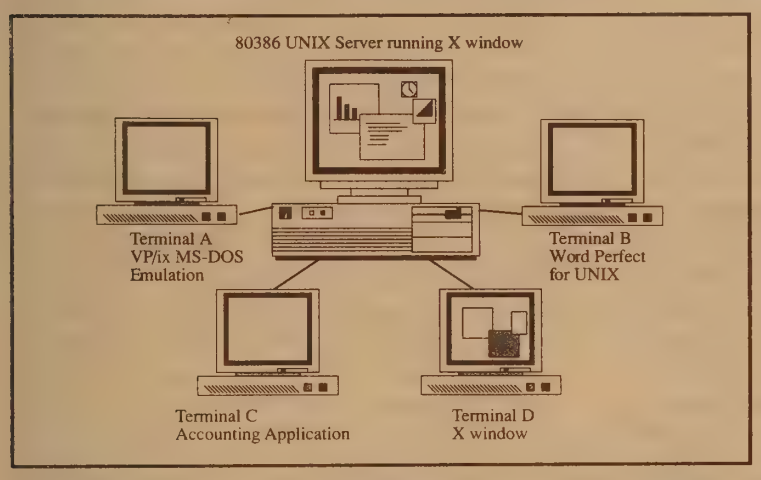

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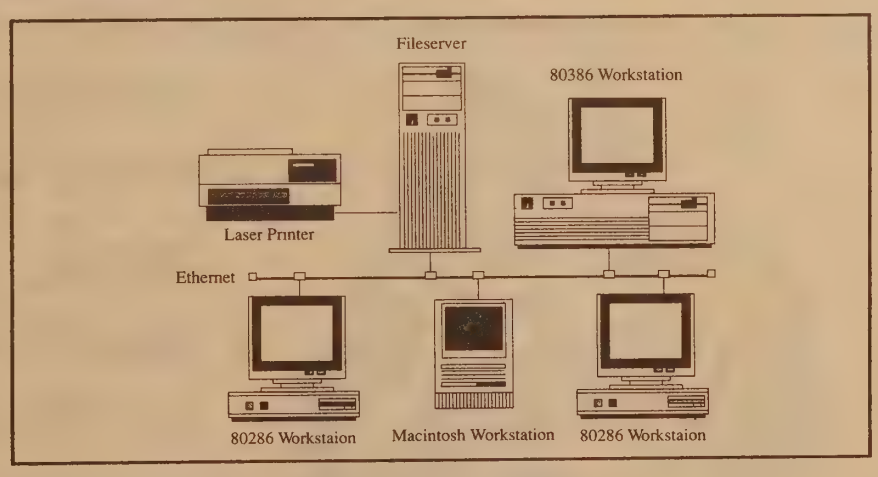

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from our world by an abyss whose depth no one has plumbed. Do you seriously believe that you can cross such a bottomless divide?"

"Yes," the young man answered in a clear, strong voice. "By ascending from directory to directory. I am convinced that there is a continuous path of directories that can be traversed from this disk to others.

"We have ample evidence," he continued, "of device-bound file systems. My research convinces me that the file system in which we live is shaped like an inverted tree. Somewhere above us is a root directory whose subdirectories spread out like branches until they end in leaf directories somewhere below us."

The Queen looked confused. "Why do you call this thing a 'root' directory? The name is quite distasteful, and in my experience a tree's roots are almost as numerous as its leaves. Why not 'trunk' or 'seed'? And why on earth should this 'root' directory be above us and the 'leaf' directories below? You aren't of Antipodean descent, are you?"

"What?"

"Oh, never mind. Proceed."

"The point I want to make about tree-shaped file systems is that they are easily connected. If the root directory of a file system on one disk were to be mounted on a leaf directory of another file system on another disk, a larger file system spanning the two disks with one continuous directory structure would be the result. It is my belief that the designers of our file system intended just this: that there be one file system spanning all the available disks and that navigation in the file system require no knowledge of the underlying devices."

The Queen of Dot closed her eyes in thought. "This is an interesting theory, but how can it possibly be verified? If the file system of our own disk is a hierarchy, and if the disks themselves are transparent to this business of inter-directory travel, how can you ever prove that your theory is true?"

The explorer smiled. "That is a point of great subtlety. If Your Highness will permit me a few moments more I will be pleased to explain." The Queen of Dot nodded her assent.

"We know in general that a disk drive must contain certain things to be useful. We see mainly files and directories, but there are also some invisible things useful for administering the disk as a whole and the files and directories. My colleagues and I have recently identified one of these structures invisible to us: it is called the 'inode'."

The Queen of Dot glared. "No doubt named by the same person who thought up the 'root' directory?"

"I wouldn't presume to say. 'Inode' is just a name that has come down to us in the literature, and it stands for a small structure that describes a file or a directory. There is one inode for every file or directory in a file system. The inodes are all numbered, so in each file system every object has a unique inode number. Individual file systems are relative to devices, so in the larger system we believe is out there, it should be possible to specify any object anywhere by naming the device on which the object resides and giving the object's inode number on that device.

"It also turns out that some inode numbers are reserved for special purposes. We have read that the root directory of any file system is always inode number 2 in that file system.

"Even though we can't see the inodes themselves, we can get the inode number of any object using the '-i' option to the 'ls' command. We plan to map the inode numbers of each directory's contents on the expedition.

"Most of the time, the inode number for '.' inside a directory and the inode number for that directory's entry in its parent directory will be the same: the two entries are just different names for the same directory.

"However, if the file systems are mounted as I expect them to be, we will eventually run into a directory where the inode number for '.' is 2. We can be pretty sure that this is the root directory of a file system and that its parent directory is on a different device. When we move to the parent directory, its entry for the subdirectory we just came from should have a different inode number."

He paused triumphantly. The Queen was staring at the ceiling contemplatively. After a few seconds she lowered her eyes to look the explorer in the eye.

"The implication of your theories is that somewhere on the system, there is a root directory for the larger, unified file system that you assume to be there. And this directory will have no parent directory. It is the absolute top of the file system."

The explorer's eyes lit up. "Yes, that is correct, and when we have found that directory, we will be able to map the whole file system's contents with 'absolute pathnames'!

The Queen of Dot's fingers drummed idly on the arm of the throne. "And if I underwrite your exploration, will you in turn claim this root directory and all its contents for me and for the Land of Dot?"

The explorer shifted uneasily, but nodded.

"Excellent. Of course, we'll have to change the name. I really couldn't bear to be called the Queen of Root." ■

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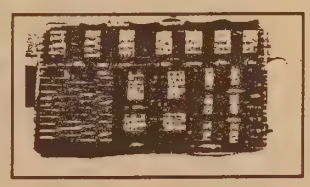

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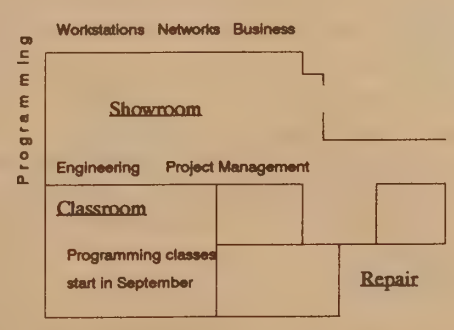

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BY MATTHEW LEEDS

Wish List Misadventure

The Perils Of DOS Ports

After four years of Amiga software, you would think that it had all been said and done. Sure, improvements to existing programs still need to be made, but what else could anyone ask for? Just wait.

Two categories I've been looking for are free-form databases and note-it utilities. Note-it utilities are like 3M's Post-It™ yellow sticky notes—scribble a short note, and stick it on a document. This sort of thing is already available on MS-DOS and Mac machines. You can tag a note to a spreadsheet cell to remind yourself how you derived a formula or to part of a word-processing document to note a section that needs revision or fact checking. The note appears in its own small window, and can be popped open or put away. Simple in concept, so far difficult to execute. Developers, take note.

A free-form database is much like an open shoebox. Toss notes into it at any time with no thought to their format or organization. Ask for any information back at any time, and the relevant info shows up on the screen. No bothering with defining fields, counting characters—just type and go. Once again, this kind of application is available on other machines. Much easier to use than traditional databases, friendlier than a Rolodex.

I thought I'd died and gone to heaven when I saw an ad recently for a product called *FINDEX V*, a free-form database for the Amiga. The ad promised just about every feature I could ask for: global search, no fields, import and export, mail merge. Only the screen shot held a hint of the disappointment to come. It had a status bar with function key commands, but no sign of an Intuition interface.

I contacted the publisher, E. Arthur Brown Company, and asked for a review copy. It arrived in a few days. I own two Amigas: one a more-or-less stock A1000 I test most software on, the other a full-blown A2000 with lots of memory, hard disk, FlickerFixer, and multisync monitor. I booted up *FINDEX* from its own boot disk and started the program.

Normally I write protect any disk I stick in a machine until I've had a chance to check it for viruses. *FINDEX* won't run from a write protected disk.

FINDEX is a port from the MS-DOS environment written in True BASIC. It tends to run a little slowly, and at first I thought this might be the reason. It also has an odd mix of DOS-inspired and Workbench-like interface. Some commands are keystroke only, others allow the use of a mouse. I spent some time using *FINDEX*, and by and large it does much of what I had hoped it would.

It also does some other things that have resulted in my putting it back on the shelf. It has two very nasty defects. The first is that it opens its own custom screen with no front-to-back gadgets and no drag bar; it refuses to respond to the AMIGA M-N combination that toggles screens back to front. This locks out the use of any other program while it is running unless you use a utility to cycle screens. The other defect is that it eats CPU cycles. If you run Performance Monitor while running *FINDEX*, you would find that the available CPU time drops to zero. This goes on even when the program is just sitting there waiting for you to give it a command. This kind of resource hogging is unforgivable on a multi-tasking machine.

I contacted the publisher to ask about this behavior. They said that the program worked as they intended, and that they intended *FINDEX* to be used all by itself. The distribution disk even lacks an icon for the CLI, although you can open one from inside *FINDEX*.

If you are a developer, you may want to take a look at products in these two categories. The Amiga could use these types of applications; so could I. Just make them Amiga products and not a quick port.

Only the screen shot held a hint of the disappointment to come. It had a status bar with function key commands, but no sign of an Intuition interface.

Amigas And Music

In other news, the Amiga is making headway in the professional music field. Roger Dannenberg, a researcher at Carnegie Mellon, demonstrated a prototype of a "MIDI Programmer's Tool Kit" at the NAMM Expo earlier this year. The Tool Kit is to become a standard MIDI device driver. This will allow developers to dramatically shorten the time it takes to create new music software for the Amiga. It will also ensure compatibility between applications competing for resources on the Amiga's multi-tasking operating system

The addition of a MIDI device driver will add to the existing base of new MIDI-based supporting files available for the Amiga. A MIDI.library has

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Matthew Leeds has been involved in the high tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.

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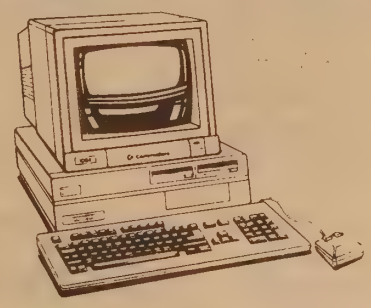

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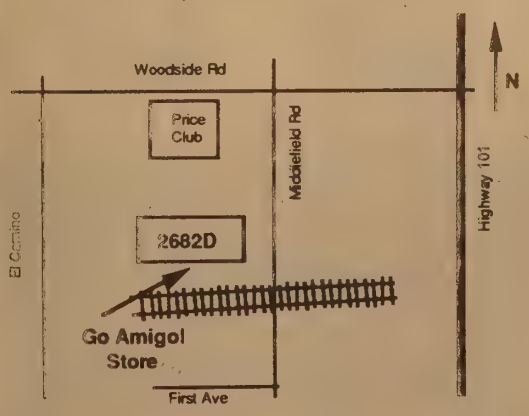

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been available for some time, and conversion utilities that change SMUS files into MIDI standard MFF (MIDI File Format) files and play MFF files are also available.

Image Processing

Good Amiga companies tend to spawn other good Amiga companies. An ASDG alumni, Eric Lavitsky, has started his own company, Active Circuits, Inc. Its first Amiga product is *ImageLink*, an image conversion and display program. It takes full advantage of the Amiga as an image processing workstation, offering conversion and display of Amiga, Macintosh, and Targa images. It directly supports conversion of all IFF formats, including 24-bit formats like ASDG's, Sculpt and Turbo Silver 24-bit files, DigiView RGB files, Targa files, Mac PICT, and PICT2 24-bit files. There are also plans to support GIF, TIFF, and Sun Rasterfile files. All of these formats can also be previewed either on the Amiga directly, through Amiga frame buffers, or on a Targa or ATVista board via a BridgeBoard.

You have full control over the color conversion, dithering and scaling, and color map conversion. An excellent Intuition interface is provided, as is full control via AREXX. *ImageLink* can be used with the Amiga to implement an image server in a multi-platform network, allowing remote conversion between image formats. It also provides access to the imaging capabilities of the Targa and ATVista boards. Active Circuits will also produce custom modules to match customer's needs. (Active Circuits, Inc.,106 US Highway 71, Suite 101, Mansquan, NJ 08736)

ImageLink can be used with the Amiga to implement an image server in a multi-platform network, allowing remote conversion between image formats.

Changes: New President At Commodore

In case you haven't heard yet, Commodore US has a new president, Harold Copperman. I had a chance to meet Mr. Copperman at the Amiga Developers Conference in San Francisco in June. He made quite a few promises regarding changes he was planning to implement—better attention to customer's needs including hiring a senior VP of customer satisfaction, a budget for advertising (reported to be around ten million dollars, mostly for TV.), and a hard look at the way CBM does business.

That hard look has resulted in the end of an old friend, *Commodore Magazine*. I had written, on and off, for *Commodore Magazine* for the last three years. In a sense, it's funny; while at DevCon, several Amiga journalists, including myself, tried to guess which Amiga magazines were going to get caught out during the shakeout we all believe must come to pare down the glut of Amiga publications currently on the market. None of us thought to mention *Commodore Magazine*. I wish the staff good luck in whatever they move on to. ■

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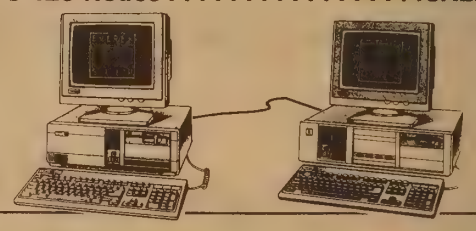

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BY DAVID HAWKINS

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You reward your followers by creating level land where they can build and reproduce. (Reproduction is a little tricky—you place ONE of your followers in a building, and all of a sudden you get a lot of followers coming out.) You can also reward some of your followers by knighting them.

Punishing the followers of the opposing deity is easy, too. Earthquakes will destroy their houses. Floods will kill them. Volcanoes will make it hard for them to build, also.

One way to play Dungeon Master is to get a copy of The Dungeon Master Editor, which allows you to change the components of the dungeon. You can make the doors easier to open and close. You can open up passageways that aren't already there.

Copyright © 1989 by David Hawkins. All rights reserved. *David Hawkins is the host of the Atari conference on The WELL (415/332-6106); send email to dhawk. He has one of the first Atari ST 1040s sold in San Francisco, both monitors, an Okimate 20 color printer, and disks all over the room.*

Both deities have exactly the same powers. Your ability to do good for your followers and harm the opponent's followers depends on how many followers you have.

And ...

Populous is a great game. Great graphics. Once you run through the tutorial, it's fairly easy to do the basic things you need to do. I've really enjoyed this game. The only problem I had was that running a world is a complex task, even with computer help. When you've conquered enough worlds that it starts getting tougher, it really takes knowing what's going on all over the world. Rough job, being God.

Mastering That Dungeon

I've been playing *Dungeon Master* some more. One way to play *Dungeon Master* is to get a copy of *The Dungeon Master Editor* (written by Edward Penman), which allows you to change the components of the dungeon. You can make the doors easier to open and close. You can open up passageways that aren't already there.

I like some things about the *Editor*. You can explore all the dungeons—although there's still the problem of killing off the monsters you run into. You can get to all the nice armor and weapons.

The *Editor* includes a book that lists the various spells, and gives tips on how to kill various monsters. It also has the maps printed out and tells how to handle some of the puzzles along the way.

Dungeon Master Spoilers

The following part of the column will reveal some of the tricks involved in playing *Dungeon Master*, so you might not want to read it if you want to play the game with no help.

Macho in the Dungeon: If you've played *Dungeon Master* all the way through and know it pretty well, go back and play it with just one character. You'll find it's easier in some ways and harder in others. Food and armor aren't as big a problem because there's at least enough food for four around, and you only need the best set of armor, not four sets.

Some general advice for using one character: make sure your character advances in levels as fighter, ninja, priest, and wizard. To get to higher ninja levels, you can kick monsters apart. Take everything out of the weapon hand and select kick. Make up potions in advance to get higher priest levels. Use all the mana available all the time to get higher priest and wizard levels.

Stamm or Halk? Playing with one character is especially challenging if you start with just Stamm or Halk. They have no mana (the ability to cast spells). You've got to be able to cast spells to win the game. So how do you do it? There's something on level four that will give you the potential for six mana points. Unfortunately it's right after a place where you have to cast a spell. Is it possible? Yes. Is it tricky? Yes.

Weak Characters: Another approach is to use the weakest character available. If you use Stamm or Halk, you don't have a problem once you get their mana up because they have good health and good stamina. But playing with Tiggy or Wu Tse is a little trickier. They die quicker, and there's no one around to resurrect them. So they need to advance as both fighter and ninja to get more health points.

Handling Monsters: As a side note, I've seen several advice charts on how to handle monsters. Some of them advise dropping a door as a way to kill the rock piles or rock squids. I like to just hack on them with a sword. It's slow, but builds up fighter points. The only things I kill with a door are knights and the golems that guard the Firestaff. And I *can* kill them by beating on them, but it does take a little longer.

That Firestaff: Once you've assembled the Firestaff, it can be a bummer that the higher levels are sealed off. But it doesn't have to be that way—just don't walk out of that room with the assembled Firestaff. (Hint, hint.) It's a good feeling to go back over the higher levels with the assembled Firestaff in your pack when you really need it.

Another fun thing to do is to save the game and take the unassembled Firestaff to the entrance of the dungeon.

Have fun in that dungeon! ■

Running a world is a complex task, even with computer help. When you've conquered enough worlds that it starts getting tougher, it really takes knowing what's going on all over the world. Rough job, being God.

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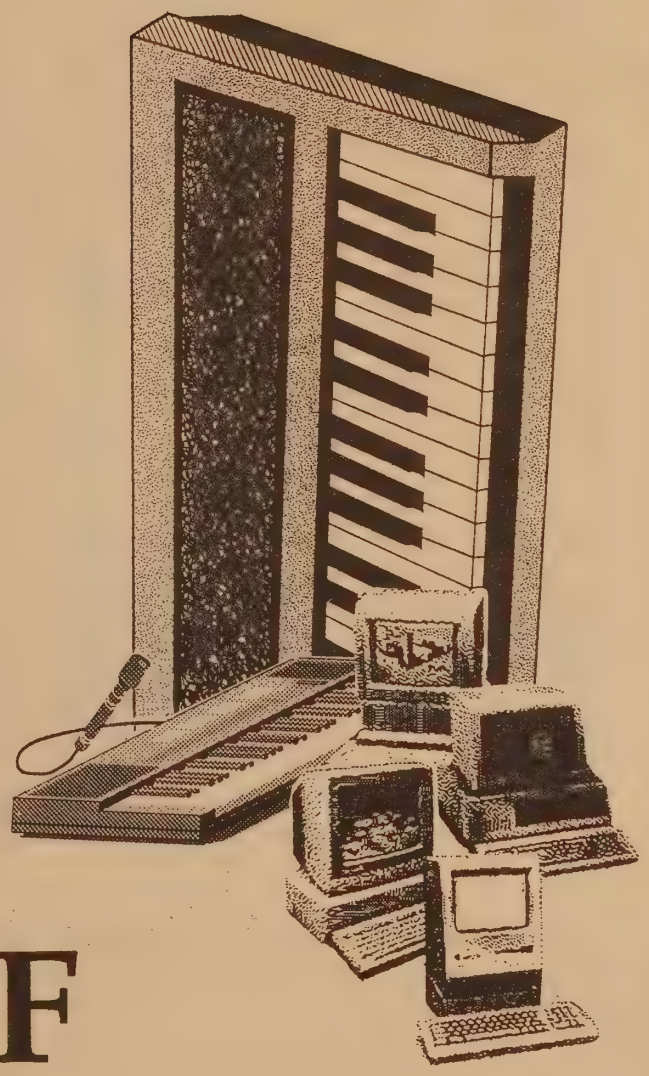

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BY SUZANNA MUSICK

Managing Information As A Resource

Information is a resource which, like personnel, materials, equipment, and money, can help you run your business more smoothly if you manage it correctly. Computers have made information more accessible; they have given even the smallest companies the power to ask questions about the current health and recent performance of their businesses in an easy, timely, and affordable manner.

In today's business environment, it is the exception rather than the rule when you come across a company that is not using computers. The installation of accounting or other informational computer systems has greatly increased the efficiency and productivity of many companies, and your business can benefit by formalizing the handling of the information that flows through your company.

Installing a computer system, no matter what size, requires that you assume the same responsibility for it as you would your other resources. This article focuses on three primary areas of computer management: management of the data and information that flows through the computer system and the business organization; management of the physical computer system hardware, software, and the data stored in and around that system; and management of the personnel responsible for implementing, operating, and maintaining the information system.

Let's look at each of these in more detail.

Managing Data And Information

Data can be defined as the raw resource that your computer system transforms into useful information. Individual business transactions (e.g., sales and expenses) are typical of data converted to financial statements or sales analysis reports for use by the managers/owners of a business.

If your information system is to function properly, you must have procedures in place that ensure accurate and complete gathering of data for entry into the information system. Such procedures include collecting and organizing all sales orders for input into your accounts receivable system, or manual coding of accounts payable invoices to reflect the expense accounts to which these items are to be distributed.

Security is also an issue, and information resource management overlaps with general internal accounting controls (controls outside of the computer system). One example would be procedures for evidence of authorization of purchases over $5,000. You must manage both the information that goes into the information system and the information that comes out. For this reason, management must continually evaluate the information it receives. As your business grows and changes, you may require different types of information or alternative views of the information you already receive. For example, you may have been receiving a report that shows sales by product line, but in the last year you have begun using outside salespeople and now need a report showing sales first by salesperson, then by product line. Even if the information entered into the system is accurate and complete, the output (the information reports) must be of a form and content that's useful to management.

Copyright © 1989 by Suzanna Musick. All rights reserved. *Suzanna Musick is a Manager in the Computer Consulting Department of Hemming Morse Inc., CPAs. Her experience encompasses a wide range of industries such as distribution, retail, construction, real estate, financial and professional services.*

Management Of The Computer System

The overall management information system in your company is supported by a physical computer system. This consists of the computer, printers, disks and/or tapes, cables, and various other hardware pieces upon which you store your data. Management of the physical computer system encompasses three areas: system security, a data backup plan, and disaster recovery planning.

The data entering your computer system must be secure from access by unauthorized personnel. Since only trained personnel should be operating your system, they are the only ones who should be allowed access to the computer. Certain information (e.g., payroll) is not to be viewed by everyone, and access to this information should be restricted. These security issues can be addressed in several ways, from the use of passwords within the system software to denying physical access to the system by keeping the computer in a locked office.

Perhaps the most vital area of concern is data backup. The information in your computer system must be backed up—copies of the data should be made and stored away from the computer. If something should happen to the data in the computer, you can use the backup copy to continue operations. As I discussed in an earlier article on taking care of your computer, you should establish procedures for daily, weekly, and monthly backup of data, including checklists to document that these procedures are being performed. Considerable time, effort, and money can be lost due to the destruction (accidental or intentional) of data when no backup exists. A few minutes of time each day, and the cost of computer disks or tapes, are all it takes to help ensure continuous operations.

The third area of the physical system management is disaster recovery planning. While loss of data can be thought of as a disaster, and does overlap with disaster recovery planning, this area deals with overall loss of the computing facility. If your computer fails and must be sent in for repairs, you must have a plan for obtaining another computer on a temporary basis. This could be a different computer at your location, or one you could rent.

On a larger scale, you must be prepared for disasters such as a fire. Again, you should have a plan in place for such a situation that directs you where to go to obtain needed computer resources. If you have implemented a sound data backup plan that stores copies of data and programs off site (away from your business), it would take little time to begin computer operations following a disaster.

A computer system, just like other types of machines, is subject to failure from any number of causes, some unpredictable. The storage media (disks and tapes) that hold your company's data are also volatile and should be backed up and secure from unauthorized access. All of these issues must be addressed if your computer system is to be managed properly.

Management Of Personnel

The third ingredient of your company's management information system is personnel. There must be a designated group of employees whose duties encompass the tasks necessary to support the successful operation of your management information system. In a smaller organization this may consist of only a few people, in a larger company it may be hundreds.

Each task, from gathering data (source documents such as sales invoices) to data input, report generation, and distribution of the reports to management, must be assigned to appropriate personnel. "Appropriate personnel" is important here, as you want to ensure that the people operating your system are properly trained in both the computer operations and their job functions (e.g., accounts payable processing).

All new employees whose job requires them to use the system must receive formal training in its proper use from someone who fully understands all the implications of operating the system. Written daily operating procedures manuals documenting the flow of information through the system will be very helpful in training new personnel and reviewing the current performance of those using the system.

Someone in management must be responsible for overseeing all of these tasks. Periodic review of the organization's effectiveness must also be performed and necessary changes made.

Conclusion

As I have discussed in this article, information is a resource that must be managed. It is as important as all other resources in your organization. Proper attention to the data, computer system, and personnel will help ensure an accurate and supportive management information system. ■

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BY WAYNE YACCO

Variations On The Server Theme: From Vulcan To Atlas

The Eagle has landed. And it has landed back in the lap of its creator, Wayne Ratliff (the author of the original *dBASE*). That's the *Eagle* language, described officially as "similar to Ashton-Tate's *dBASE*," i.e., a clone, which is the programming front end for *Emerald Bay*. You remember *Emerald Bay*, don't you? The database engine developed by Ratliff Software, marketed by Migent, disputed by Ashton-Tate, and nearly acquired by Canadian LANware.

Migent had promised a LAN server for *Emerald Bay*, but one was never delivered before the bottom fell out. Nearly a year later, after Migent closed its Incline Village doors, after litigation for *Emerald Bay*'s return, long after the apparent resolution of the Ashton-Tate suit, Ratliff Software promises that the LAN server is ready. More than that, the *Emerald Bay* product has been refined and improved, including an *Eagle* compiler, and it awaits "only the printing of documentation before it ships" according to Wayne Ratliff.

In an interview for this column, Ratliff described the LAN server as being a third client-server type: neither a file server nor a database server. He called this variety a "table-server" model (although company literature describes it as a database server).

From its description, the table server seems like a worthwhile refinement to the client-server model. The table-server model features a server that is (relational-database) table "aware." It breaks from the file-server model, as does the database server, in that it performs index searches and most index maintenance at the server.

Network traffic in the table and database-server models is reduced below that of the file-server model because indices are not transmitted with data. In a moderate, 10,000 record database, perhaps four levels of indices would need to be traversed to locate a record. A file server would have to send all of these levels to allow updating of the database. Only 20% of a typical data packet might be data. In the table model, the updating is performed locally at the server.

However, the table model differs from the database model because it does not perform all database functions. Some functions, those that optimally can be off-loaded from the database engine, are shared with, or performed entirely at, workstations. These features include data-validation, query-optimization and editing tasks. This improves performance of the database engine and reduces the workload of the server on which it runs.

Both *Eagle* and the *C Developer's Tool Kit* will include a two-user version of the LAN server. Developers will be able to create LAN applications without actually investing in a LAN- server license. Developers may also be interested to note that *Emerald Bay* uses the B+Tree file structure and was written with a heavily modified version of the C-Index database library as its core.

In addition to *Eagle* and its developer's kit, the *Emerald Bay* engine will support the *Liaison* spreadsheet interface (formerly *Summit*) and, eventually, other applications.

One last note about *Emerald Bay*. The Eagle not only landed in Los Osos (the bears), but it is undergoing a name change. It now will be released as *Vulcan*. Not coincidentally, that's the original name of the microcomputer database that marketing savant Hal Pawluk renamed as *dBASE* all those years ago.

The "Surface" Metaphor

Emerald Bay uses the term "surfaces" to describe applications that interface with it. Those applications, such as its database language, are said to fit on top of the database engine like an outer coating.

One other database uses these same metaphors: Microrim's *Atlas*. The SQL database engine will initially have an *R:BASE* program-development surface, for example. *Atlas*, which is scheduled for release in the first quarter of next year, also shares *Emerald Bay*'s philosophy of dividing network database tasks between servers and workstations.

Atlas has also had claims made for it that are giving some of the competition fits. One competitor's spokesman vehemently asserted that the vendors of established database servers—Oracle, Gupta, Sybase, and others—just don't believe that *Atlas* will ever ship. He just can't believe that Microrim could quickly turn out an application that none of the others have developed over the many years they've been in business.

What *Atlas* promises is the ability to directly use data from many major databases. Not to import or export data or to obtain it through a custom driver that tricks *Atlas* into thinking it's accessing one of its own databases, but to process data from diverse hardware, operating systems, and database applications.

According to Thom Kozik, *Atlas* product evangelist, Microrim will publish a white paper in the near future outlining the product's capabilities. Those capabilities include the ability to run on many major hardware platforms, under several operating systems, and to directly access the data of other databases while preserving their integrity and complying with their security requirements.

Kozik says that, for the most part, other databases access the data of foreign databases through import and export facilities or through custom applications. *Atlas* will transparently access data while it resides in major databases. It will feature on each platform a graphical user interface familiar to that system's users. And it will provide transparent transport of applications across these platforms by including information such as screen layouts in its own database. Including application information in the database will reportedly allow each edition of *Atlas* to dynamically create a version of an application for its own platform.

Ratliff described the Emerald Bay LAN server as being a third client-server type: neither a file server nor a database server. He called this variety a "table-server" model.

All of these capabilities are part of Microrim's strategy for providing enterprise-wide data sharing—the ability to access data distributed throughout a large organization's computers and networks. Other database companies have their own strategies but most of the serious contenders are working on ways to provide this capability.

The ability to access and process data across platforms will provide a new level of distributed processing. An application will be able to work with data from all of the applications that have evolved with the growth of an organization's computer systems. Next month we'll look at some of the efforts being made by developers such as Gupta Technologies, Oracle, and Microsoft/Sybase/Ashton-Tate.

Addendum

Last month we concluded our overview of LAN technology with a discussion of network protocols and *Netware 386*. We also mentioned the client-server model. There are other alternatives to the client-server model that were mentioned only indirectly.

The client-server is one of two models in common use for network communications. The other is the peer-to-peer model used by networks such as TOPS or 10 Net. IBM's APPC protocol is a peer-to-peer protocol that will be used to connect workstations and networks to mainframes.

Peer-to-peer networks provide the ability for workstations to access the resources on other workstations rather than requiring that particular systems be designated for handling resource requests. However, security administration, email, and other services can benefit from the centralized nature of the client-server model. ■

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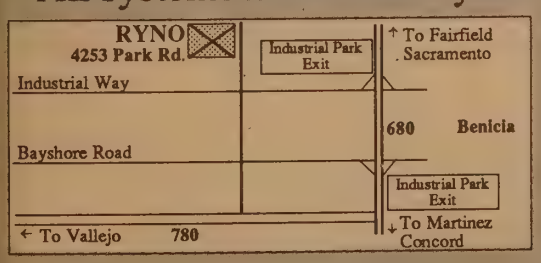

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BY MIKE MARKOWITZ

Advanced BASIC For The IIGS

"And the Lord said, Behold, they are one people and they have all one language; and this is only the beginning of what they will do; and nothing that they propose to do will now be impossible for them."

GENESIS, 11:6

In the beginning, there was AppleSoft BASIC. It came free with the computer. It had a simple syntax and straightforward data structures. After a few hours of study, you could write little programs that actually did useful or amusing things.

Alas, as in the biblical story of the Tower of Babel, the Apple II suffers from a confusion of languages. Professional Apple II programmers prefer assembly language for speed and compactness. Most IIGS software is written in C to take advantage of Apple's development tools. Many elementary educators prefer LOGO as a first language, and in high schools PASCAL seems to offer a better preparation for computer science in college.

Micol Advanced BASIC for the Apple IIGS is a new contender in this arena. As a structured, compiled language, it overcomes the speed and power limitations that led to the decline of BASIC in recent years.

Early versions of BASIC had to run in 16 K of memory or less. This small RAM space requires an interpreted language, which laboriously reads and executes one line at a time, converting each of the programmer's statements into the machine language instructions the computer "understands." A "compiled" language, in contrast, reads in an entire program at once, and creates a complete file of ready-to-run machine-language instructions. A good compiler locates and identifies many programming mistakes during compilation ("compile-time errors"), before they can crash the program ("run-time errors")

What "Structured" Means

The sequence of an AppleSoft BASIC program is determined by line numbers, and the programmer can freely shift the flow of control using GOTO statements. As a structured language, *Micol Advanced BASIC* can dispense with line numbers, and discourages (but does not forbid) GOTOs. Computer scientists abhor the GOTO statement because it creates "spaghetti code"—structures so convoluted that they are hard to read, modify, or debug.

Instead of line numbers, you can sequence your *Micol BASIC* program according to explicit named procedures (PROCs), functions (FUNCs), and routines. Unlike AppleSoft, this language permits long, descriptive names for variables and procedures, making the code easier to read and understand.

Copyright © 1989 by Mike Markowitz. All rights reserved. *Mike Markowitz is a computer engineer for a large Southern California aerospace firm. He has been writing about Apple II computers since 1984. You can reach him on AppleLink (MOUSEKOWITZ) or The Source (SIG 060).*

How It Works

You launch *Micol Advanced BASIC* like any other ProDOS 16 application. The distribution disk is not copy-protected; the program files can be readily copied to a RAM-disk or hard disk. On startup, the program presents you with a simple command shell that lets you communicate with the operating system and invoke the editor or compiler. A "}" (right curly bracket) character is the prompt for the command shell.

You write your program using an 80-column full-screen text editor. The editor has a 128 K buffer and word processor features such as print, cut, paste, search, replace, and merge. It creates and saves ASCII text files, which the compiler accepts as input. A single shortcut command, option-K, can save, compile, link, and execute the current file. The editor does not support use of the mouse.

Performance

Micol Advanced BASIC is no memory hog. It performs acceptably on a 512 K system. The "run time library" takes up about 50 K of memory, leaving ample space for programs and data.

Since the compiler generates "native" 65816 machine code, your programs can use the full processing power of the IIGS. The compiler supports SANE (the Standard Apple Numerical Environment) for fast, accurate mathematics.

There is extensive support for sound, using pitch and volume controls with MUSIC and NOISE commands. The 320 and 640 modes of Super High Resolution Graphics are accessible (using the HGR and HGR2 commands), but you need some knowledge of QuickDraw II to really do anything fancy. There is also no way to create pull-down menus or use the mouse for other kinds of user input without using the GS Toolbox.

You can access the GS Toolbox using a simple TOOLBOX command, followed by a complex string of parameters. The entire topic only gets five pages of explanation in the *Micol Advanced BASIC* manual—while Apple's documentation for the IIGS Toolbox itself runs to two fat volumes.

Only experienced IIGS programmers will be able to use this language to exploit the powerful capabilities hidden in the Toolbox.

As a structured, compiled language, Micol Advanced BASIC for the IIGS overcomes the speed and power limitations that led to the decline of BASIC in recent years.

Documentation

The 192-page manual is spiral-bound with a padded vinyl cover. The type was handsomely set on a LaserWriter printer, then reduced too much and poorly printed. The package includes a Glossary, an Index, and several helpful Appendices. Much of the documentation is quite theoretical, arguing the advantages of a structured compiled language at length. There is a dearth of practical examples—the only complete example is a simple disk utility program listed in an Appendix.

Programs written in *Micol Advanced BASIC* may be sold commercially, including the run-time library and loader, as long as Micol's copyright notice (displayed during booting) is retained.

Evaluation

BASIC is an acronym for "Beginner's All-purpose Symbolic Instructional Code." The language, originally developed for teaching at Dartmouth in the early 1960s, has suffered from many poor implementations. *Micol BASIC*, the compiled, structured 8-bit precursor of this product, is an excellent implementation. *Micol Advanced BASIC* extends the concept to the IIGS but, as the name suggests, it is not for beginners. The IIGS is a difficult computer to program, and this language makes the job only a little easier. (*Micol Advanced BASIC* requires an Apple IIGS, 512 K, one 3.5" drive, ProDOS 1. Not copy-protected. Price: $145 Micol Systems, 9 Lynch Road, Willowdale, Ontario Canada M2J 2V6, 416/495-6864) ■

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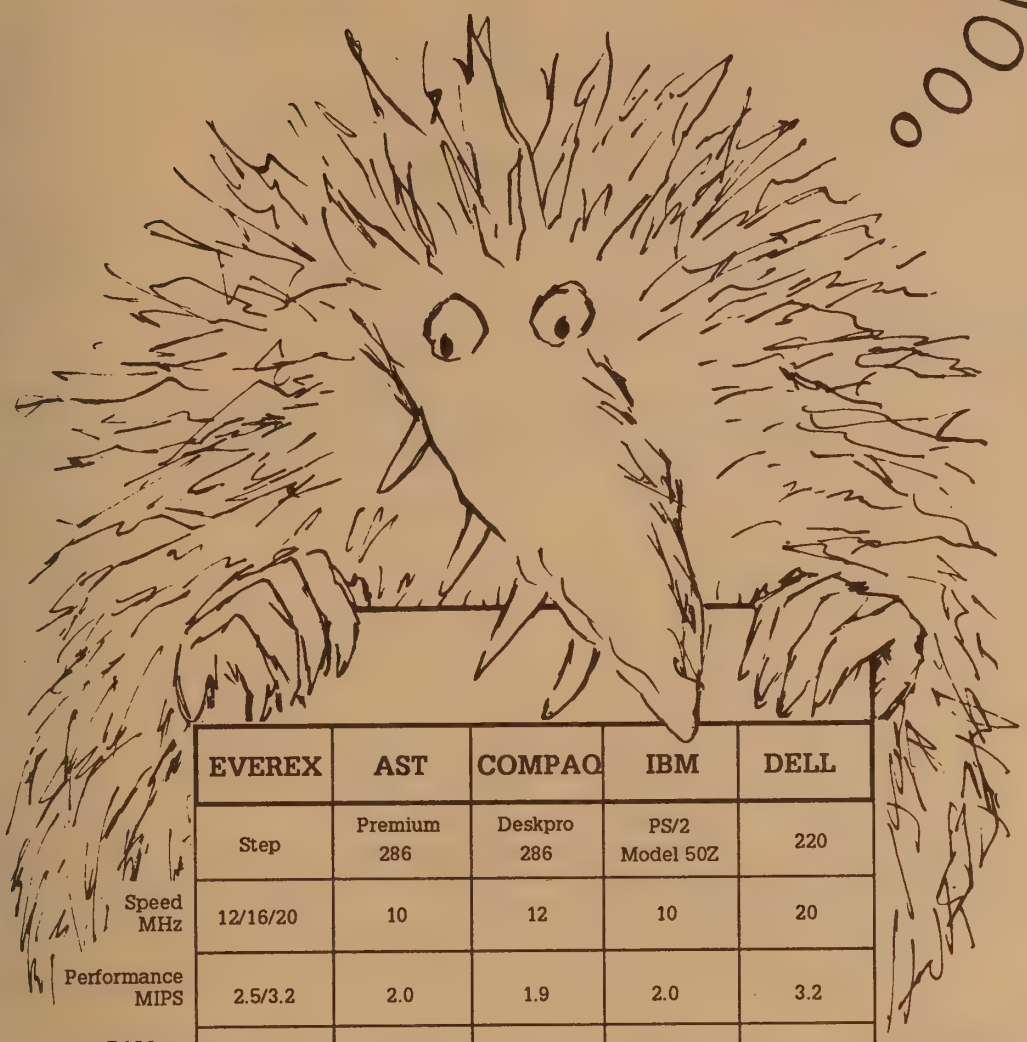

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HD Interleave	1:1	1:2	1:2	1:2	1:1
Programmable LED	Yes	No	No	No	No
Slots/Drive Bay	8/5	8/5	8/5	3/2	3/2
OS/2 Support	Yes	Yes	Yes	Yes	Yes
Warranty	1yr on-site	1yr carry in	1yr carry in	1yr carry in	1y on site
386 Expandability	Yes	Yes	No	No	No
AMMA Cache	Yes on 28620	No	No	No	No

Often in this crazy industry, a newcomer seems to suddenly leap into the scene and takes the industry by storm. Such is a company called **EVEREX**.

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All **EVEREX** 286 computers are expandable from 1 to 4 megabytes of RAM. To support the true 0 wait state processing, memory chips are tested to 60ns -- almost twice as fast as most of our competition.
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6. Slots/Drive Bays
EVEREX computers are available in small and large footprints. The small footprints have 8 available slots and 5 half height drive bays.
7. DOS 3.3 is standard. **8. OS/2**
Most vendors like to hide the fact that OS/2 is vendor level specific. This means vendors seeking to have OS/2 compatibility have to provide you with their version of OS/2. **EVEREX** has a version OS/2 available as an option for their machines.
9. Warranty
EVEREX computers and all **EVEREX** components -- including hard disks, monitors, and peripherals come with a full year of on-site warranty. This service is provided through NCS which has 106 locations nationwide.
10. 386 Expandability
All **EVEREX** 286 computers with the exception of the 286/20 can be upgraded to a 386 through a user installable kit. This transforms your 286 PC into a 386 using the 80386SX.
11. The STEP computer uses a large cache of very high speed static RAM which allows the processor to operate with zero effective wait states. The SRAM cache is implemented via **Everex's** Advanced Memory Management Architecture which provides higher throughput than is available with caching schemes available on other PC-compatibles.
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can set it to any color you want, but you cannot do anything with it.

Apparently this was done to avoid distortion of text and graphics at the edges of the screen. This distortion is not noticeable with motion video. So the Video Overlay Card can use the entire screen—at least for video; your computer graphics are still confined to the original IIGS image area.

The most noticeable shortcoming of the VOC is a persistent "jitter" or vibration of the overlaid computer graphics. According to the manual, this is an unavoidable result of the way the card synchronizes the different signals. It is worse with some color combinations, especially when you use thin line weights—you have to experiment to get the best results.

It should also be pointed out that the VOC is not a video digitizer (like the defunct AST VideoPlus card or Digital Vision's *ComputerEyes* for the IIGS). There is no direct way to capture or save the screen displays that you create, except by recording them on videotape. To get a decent video still frame image, you need a high-quality four-head VCR or a laser videodisc player. The VOC does not provide any audio capability—it simply passes the audio portion of the video signal through without alteration. To hear the sound track, you have to hook up your VCR to your stereo system.

The *VideoMix* software does not (by itself) provide any special effects such as moving windows, fades, wipes, or dissolves. If you want your final video image to fade to black, for example, you would have to stop your source and your VCR, bring up the *VideoMix* desk accessory, advance the slider one notch, close the desk accessory, record a few frames, and repeat this process six more times, with predictably jerky results.

Fortunately, several third-party software packages were announced simultaneously with the release of the VOC that *do* support special effects, including a new version of *Slide Shop* from Scholastic Software.

Even for schools or home hobbyists, a desktop video workstation represents a modest investment: an Apple IIGS, the VOC, and two VCRs, one of which might be an inexpensive playback-only unit. Software tools should include at least one paint program, an animation program, and perhaps a titling and special effects program, such as Brøderbund's *VCR Companion*. Be sure your paint program allows you to hide the menu bar and tool palettes, since you don't want them cluttering your output. You also have to be careful not to leave your mouse cursor in the middle of your image when recording. I got particularly good results using the VOC with Baudville's *8/16 Paint*.

According to the advertisements in last Sunday's paper, the cheapest video camcorders are now down around $700. The entry-level cost of desktop video is now not much more than the entry-level cost of desktop publishing. Just as desktop publishing made it easy for ordinary people to express their ideas with powerful graphics on paper, desktop video can make it easy for ordinary people to express their ideas with dynamic images and sound. Unless Apple manages to screw up this product with typically inept marketing and developer support, the VOC could be the critical link in a small revolution. It would not be difficult to build the functionality of this card directly into a future update of the IIGS motherboard, but the future of the entire Apple II product line does not look that bright right now...■

Products Mentioned

Apple II Video Overlay Card
List price: $549
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, California 95014
(408) 996-1010
For: Apple IIe (128K), IIGS (512K)

ComputerEyes
Video Digitizer for the Apple IIGS
Digital Vision
270 Bridge Street
Bedham, MA 02026
(617)329-5400

8/16 Paint
$75.00
Baudville
5380 52nd Street SE
Grand Rapids, MI 49508
(616) 698-0888

VCR Companion
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VGA Card
16 MHz $2299.00

Clearance
Genoa VGA 8bits card
5100 (800 X 600) $225.00
5200 (1024 X 768) $255.00
Panasonic Printers
KX-P1180 $195.00
KX-P1191 $235.00
KX-P1124 $345.00
Hard Drive
65MB (28ms) RLL $395.00
90MB (25ms) SCSI W/ Controller $995.00
Math - Coprocessor
80287 - 10 MHz $255.00
80387 - 20 MHz $395.00
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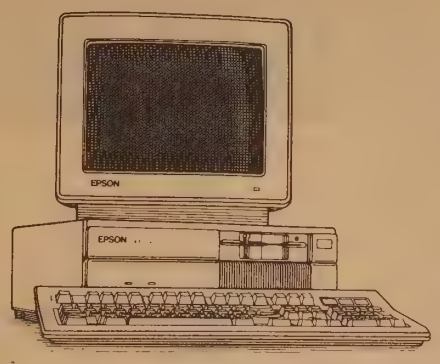

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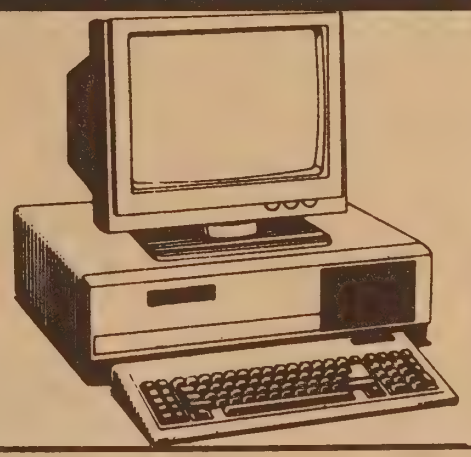

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USER GROUP NETWORK

BY MARY EISENHART

User Groups, Professional Associations, And Friendly Sysops

It's August in user group land, and there seems to be quite a bit going on amid the picnics, beach trips, and family vacations.

If you're an Atari ST user and your vacation takes you to Sacramento (or you're just there to begin with...), circle August 9 on your calendar and head on down to the Computertime Business and Graphic Center, 8040-A Greenback Lane in Citrus Heights. At 7 pm, the first meeting of the new **Sacramento ST Users Group** will be happening, and president **David Schwartz** invites you to come on down.

"Our group is open to all users of Atari ST and Mega ST computers," says he. "We plan to offer many SIGs—Beginners, Desktop Publishing, MIDI, Telecommunications, CAD/Graphics, and IBM/Macintosh emulators."

If you can't make the meeting but would like to know more, or if you'd just like to receive information from the group, call David at (916)944-1291.

Computer consultants of various types will be glad to know about **Independent Computer Consultants Association (ICCA)**, which is a national professional organization dedicated to ethical standards in computer consulting. Among its services is a referral service, which will also probably be of some interest to people looking for a reliable consultant to deal with that office reorg and other interesting computer-related projects.

The ICCA has various local branches, each of which has monthly meetings, according to Orange County-based **Dennis Evans**, who wrote to let us know about the organization. For more info, call the branch nearest you: Los Angeles (805)253-1973; Northern California (415)441-2948; Orange County (714)852-6164; San Diego (619)294-6550.

Also on the professional organization front, we heard from **Mario Garcia**, who's the president of the **Data Center Management Association.** It's a group of data processing professionals with a particular interest in data center management, and meets to provide a forum for sharing problems and solutions. It meets on the fourth Thursday of the month at 5:30 pm in the Fort Mason Officers' Club in San Francisco. Mario invites interested parties to check out the next meeting, and suggests that if you'd like more info, you're welcome to call him (408/991-5285) or **Joe Ocegoeda** (415/553-1738).

Rob LaTulipe of Monterey, who's one of the coordinators of the **Silicon Valley Paradox Users Group**, passes along the news that the SVPUG now meets on the third Tuesday of the month, except in December. The group was formerly the South Bay chapter of the **San Francisco Paradox Users Group**, which has now dissolved. So if your database is getting you down, or you just want more information about this valuable resource, call Rob at (408)646-0297, or **Emily Alford** at (408)285-0348.

On the BBS front, the **QU-AN-TO BBS** (415/255-2981) gets an enthusiastic plug from user **Vin Locke** of San Francisco. Nominally dedicated to quantitative analysis tools, the board draws callers with interests in programming, radio communications, ciphers, astronomy, "and nearly anything involving mathematical manipulation."

Says Vin: "QU-AN-TO is different from the other boards I've come across in the San Francisco area; I've noticed that on most boards, the only thing that the BBSers have in common is that they are all using computers—some for games, some as word processors, etc., and the BBS is a break from the usual use of the machine. At QU-AN-TO, the callers all seem to be involved in something interesting, like scientific research or programming."

Vin also has high praise for the sysop, **Dr. Ken Hunter**: "Another difference here is the sysop's attitude; too often, I've come across sysops who have what I've come to call 'god-king complex,' with the tendency to look down upon callers and to remind them that they are only rewarded with the privilege of using the board due to the infinite generosity of Lord Sysop—I'm sure you know what I mean. Well, Ken is not like that at all. He is actively involved in the conversations that take place in the messages, yet his voice does not dominate the conversation. He appreciates caller input and supports those who help others. Ken is always looking for new callers, and it is usually fairly easy for a new caller to obtain download privileges."

Well, QU-AN-TO sure sounds like the techno-goodvibes place to be in the Bay Area, so fire up your modem and check it out!

And if you've got something you'd like us to know about (and we *love* hearing from happy group members or board callers as well as official representatives), a wealth of communication options awaits you. US Mail goes to User Group Network, 5951 Canning Street, Oakland, CA 94609. Email can be sent to **microx** on The WELL (415/332-6106), **{pacbell, hplabs,ucbvax, apple}!well!microx** from Usenet, **MICROTIMES** on MacNET, and **bex754** on The Source (yes, we know CompuServe just acquired The Source, and when we get our new ID we'll be sure to let you know). Faxes are also welcome: (415)652-4618 and (213)467-5486. See you next month. ■

Bulletin Boards

INTERNATIONAL

Cassia Express. (065) 344-9163. 300/1200/2400 24 hrs. Singapore. Sysop: N.M.Rahman

FidoNet Argentina (054). (01.1) 541-22-419. 8-N-1 3 PM-11 AM PST. The 1st fido node in Argentina has over 450 subscribers. Specializes in issues from S.A. PD software library to d-load. Sysop: Pablo Kinman

Remote Bulletin Board (Singapore). (065) 445-1646. 9600/2400/1200 24 hrs. 218 Mb Online (IBM upload/download). Sysop: Umar A. Rahman

203

Terrapin Station. (203) 656-0134. Grateful Dead Board. Sysop: Klaus and Gretchen Bender.

209

Bertha Board BBS.(209) 239-9853, 300/1200/2400, 8-N-1, 24 hrs. MS-DOS, others. 95 Mb online. Emphasis on programming. Uploads and downloads. No fee but registration required. Sysop: Kenneth Roach.

Oasis Software Library.(209), 823-2803, 300/1200/2400, 8-N-1, 24 hrs. Shareware and PD for IBMs and compatibles. No fee but registration required. Sysop: Tim Campi.

Silicon Realms. (209) 754-5530. 300/(1200 Soon) 9:30AM to 6:30AM. Formerly Motherload 64. Commodore, PET & Plus/4. Programmers board, Continuing & Short Story boards, FRPG. Sysop: Joe Commodore

SMERDON'S CASEL (California Attractions, Sights and Entertainment Listing), (209) 521-4910, 8-N-1, 24 hrs., 300/1200/2400. Information on over 700 things to do and see in California. Free. Sysop: Sharon Smerdon.

The Backdoor BBS.(209), 952-9430, 300/1200/2400, 8-N-1, 24 hrs. MS-DOS oriented board. Lots of software, online chess game, much more. Sysop: Randall Fox.

212

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Chastity's Bistro. (213)656-3060. 300/1200/2400. 13 lines under DLX BBS software, private chats, 40 different channels for group chatting, message bases, file library, database system, a user matchmaker, user profile browsing. Must be over 18, voice verified.

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Graphic Encounters BBS. (213) 439-9000. 8-N-1, 24 hrs., 300/1200/2400. First logon requires password "computer." Email, MIS employment, graphics, CHAT, technical information, Oracomm, Sysop Corner. Operating 6 lines. Sysop: Bill Bloomer. Voice: (213) 439-3135.

Grey Matter BSS & RCP/M. (213) 971-6260. 300/1200/2400 24 hrs. Televideo and Timex/Sinclair support. Sysop: Ed Grey.

Hack Shack BBS. (213)867-4867, 8-N-1 noon to midnight, 300/1200/2400. PC software, hardware orientation. Sysop: Wally.Voice: (213)604-8739.

Home Loans BBS. (213) 372-4050, 8-N-1, 24 hrs., 300/1200. Daily update of mortgage rates. Voice: (213) 316-5508.

Homer. (213) 490-0436. 24 hrs. Home automation, science, and general interest. Sysop: Rick Ellis.

ICN. (213) 204-0646. 2400/1200/300 24 hrs. The place to buy/sell/trade collectibles (stamps, books, etc.)

Information Symposium. (213) 258-5086. 300/1200/2400 8-N-1

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- 1 Parallel, 2 Serial Port
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286 12 MHz 0 Wait

- 6/12 MHz 0 Wait
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286 20 MHz 0 Wait

- 512K RAM Expandable to 4 MB
- 8/20 MHz Switchable
- Landmark=25.5
- Chip & Technology Neat Chip Set
- Shadow RAM for fast BIOS Access
- EMS LIM 4.0
- Page Interleaved Memory Controller
- 1.2 MB Teac Floppy Drive
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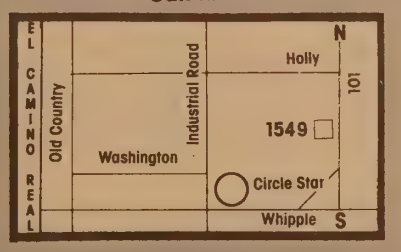

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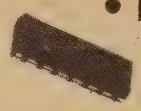

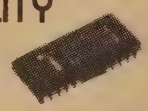

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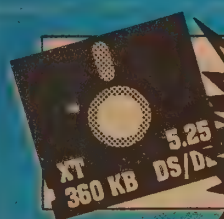

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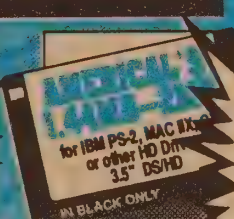

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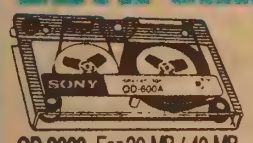

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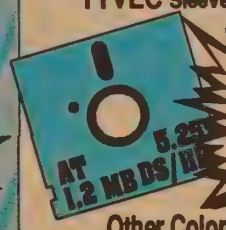

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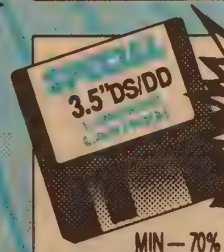

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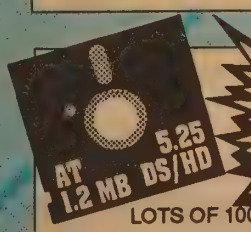

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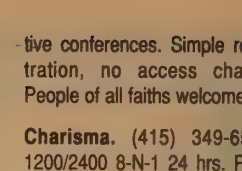

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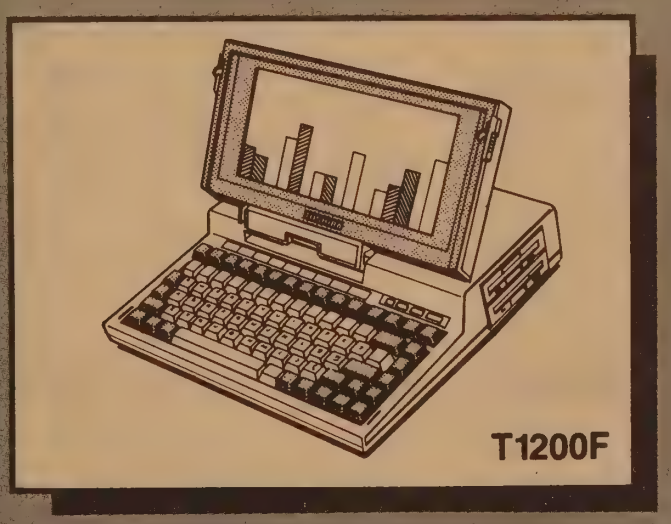

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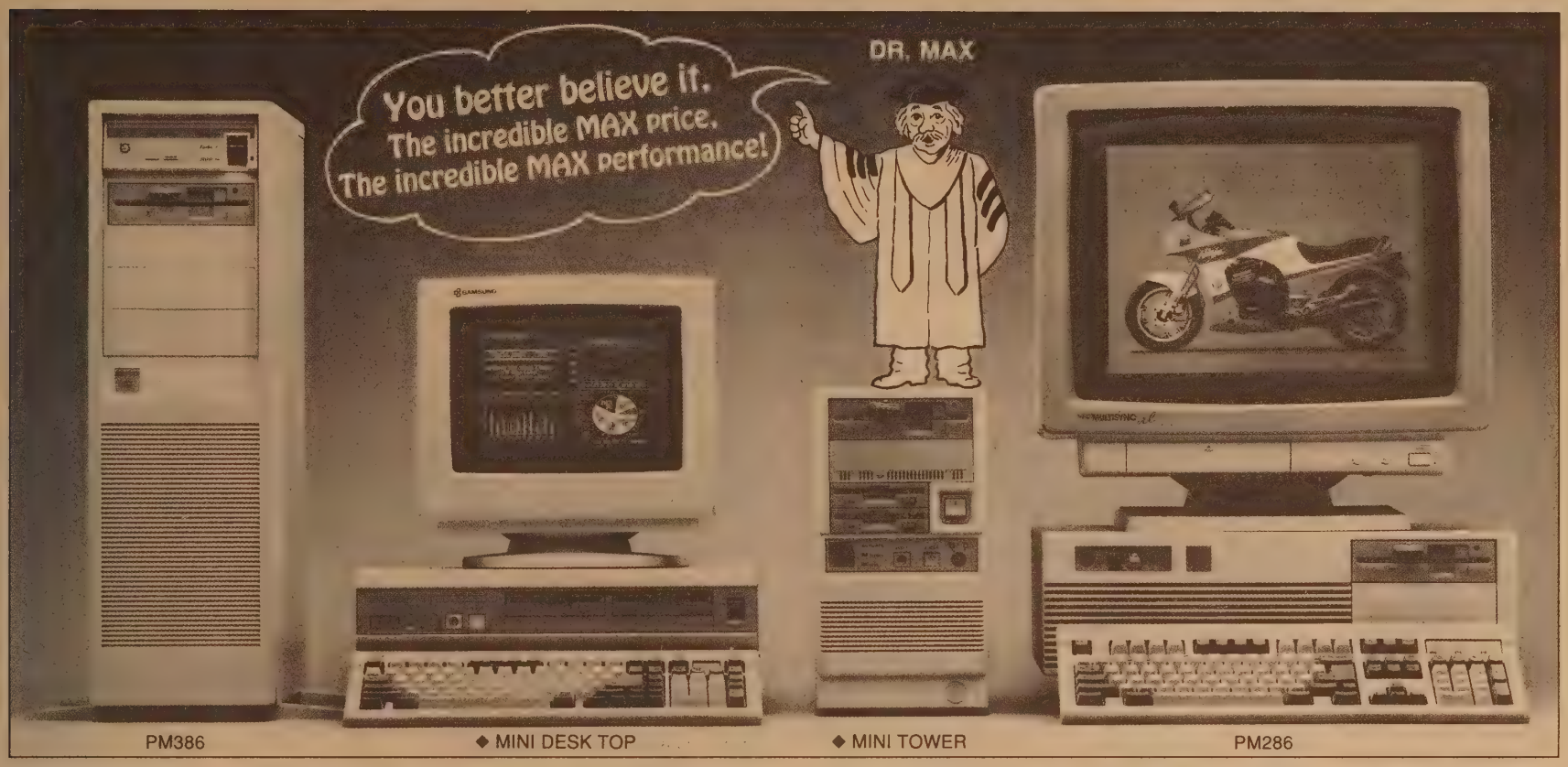

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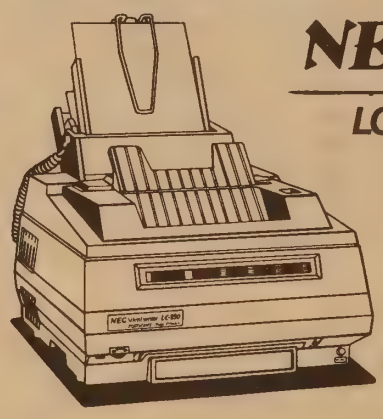

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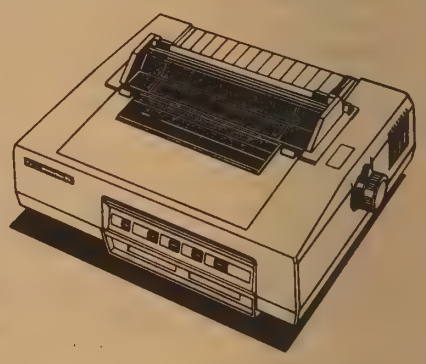

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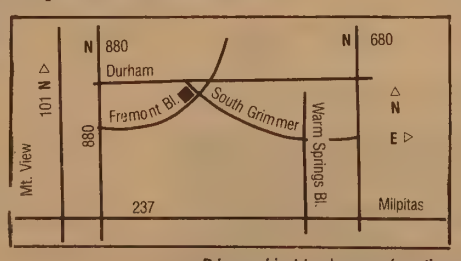

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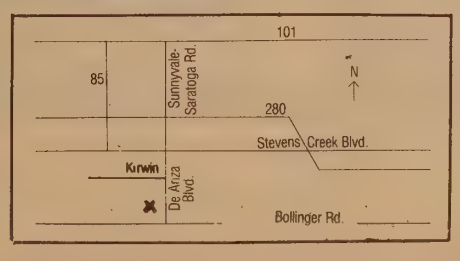

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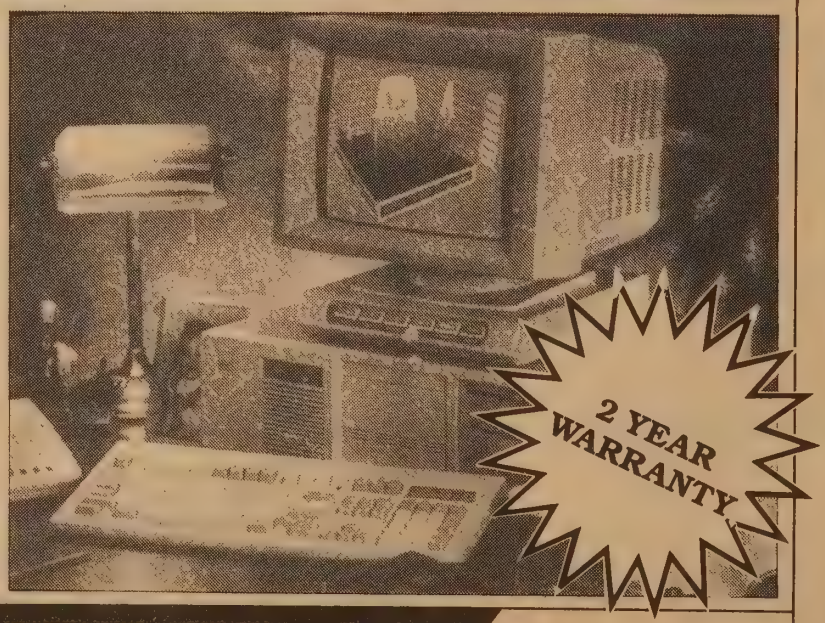

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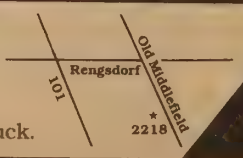

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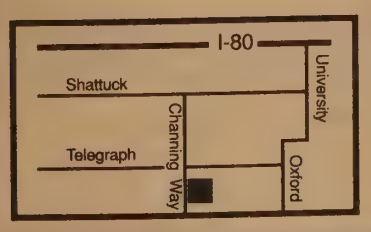

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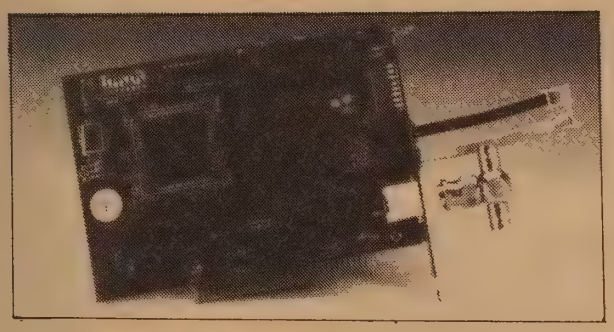

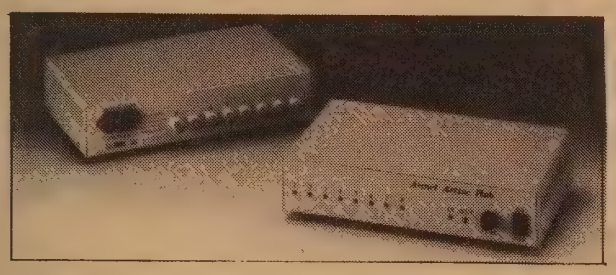

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LA JOBS. (818)999-1501.Los Angeles' most extensive database of Eng./tech jobs openings. Email direct to employers. Service provided by Los Angeles employers. No agencies. Type GO JOBS upon entry.

Loan Line. (818)999-1501. Type GO LOAN upon entry.

Lynzie's Motherboard. (818) 989-3875. 549-0343, 508-6482 ,300/1200/2400/9600 8-N-1 24 hrs. Matching, group and private chat system, local social events. S.F.V. Sysop: Lynzie Flynn.

MacLodge. (818)355-8040. N-8-1, 24 hrs., 300/1200/2400. Mac oriented Red Ryder Host BBS. Discussion, files, and on-line games. Running since December 1985. Sysop: Blake Chattaway.

Mysteria. (818) 353-8891. 300/1200/2400. Occult & general text files, CP/M, turbo Pascal. Sysop: Phil Hansford

Oracle. (818) 509-9681. 300/1200/2400 8-N-1 24 hrs. 9 phone lines. System password MICROTIMES for higher access. Free demo version of Oracomm BBS software. Sysop: Gary Young

ORCHID. (818) 999-1501. Direct access to employers. We are not a job agency. Type GO JOBS upon entry. Sysop: Mindey.

Plaza Party Line. (818) 842-3322. 300/1200. Chat with 11 other callers. No hourly charges. Adult sections. Lots of women callers. Online since 1983.

Teleweb Valley. (818)999-1501.Los Angeles 818 access number.

The Bear's Lair. (818) 988-6694, 300/1200/2400, 24 hrs. Macintosh oriented, 200Mb on line, multiple message sections. Sysop: Bruce Gerson.

The Board with No Name. (818) 785-3340. 300/1200. A gay-oriented BBS. No hourly fees; no time limit w/ paid access. 16 lines.

The Consumer & Business Network. (818) 360-4679. 24 hrs., 1200/2400. Arc files, business and financial info, classified ads, discussion, Mac files, messages & mail, newsbytes, on-line store, real estate, USA Today, Westlink Report & HAM radio, PC Pursuitable. Sysop: Kenneth R. Wilcox.

The Ledge PC Board. (818) 352-3620. 300/1200/2400/9600. All systems welcome, full support for IBM PC/AT compatibles.

The "Other" Bail. (818)358-6968. N-8-1, 24 hrs., Adult love chat., str/gay dating database, IBM software, business files, PC-Pursuitable. Sysop: Michael Allen.

The Software Bank. (818) 993-5516. 300 to 9600. Atari ST only. 65 megs. Node #95 of FNET. Exchg. messages & files w/users on other FNET BBS nationwide thru our network. Sysop: The Software Bank..

TUG-NET (Technical & User Groups Network). (818) 882-6045. MS/DOS and CP/M supported. Voice: (818) 957-4721.

Valley On-line Shopping Network. (818) 772-4227. 300/1200 (soon to be 2400). Provides local businesses the opportunity of selling their products on-line to local and national computer consumers. Sysop: BRAINS.

VICUG-BBS. (818) 772-4227 N-8-1, 24 hrs., 300/1200/2400. See what is happening at VICUG (peakers, demos, newsletter, (VICUG-RAM), disk bank, desktop publishing sub group, etc. Sysop: Linda Rohrbough. Voice: Harry Tischler, (818) 997-6000.

Win Free Cash & Prizes. (818)908-9886, New BBS. Free to consumers. Everytime you call you can qualify for free cash & prizes. Voice: (818)908-9911.

900

Support, Inc. 1-900-860-HELP, 7 am–10 pm, Voice help with Macintosh problems. $2.00 for first minute, $1.00 for each successive minute. DOS help to be available soon. Sysop: Jeff Hellman.

916

24th Street Exchange. (916) 451-7179. 300/1200/2400 8-N-1 24 hrs. Opus-based system. Free access. Lge. selection pub. domain files for IBM & compatibles. Special interest areas. Sysop: Don Kuhwarth/Laura Stua.

Adult Contacts. (916)338-4909. 300/1200/2400. 24 hrs., Where mature adults meet to socialize and to exchange ideas & information. On-line matching games, files, info bulletins, messages, and lots of FUN! We especially cater to the new female user. No minors or technobabble allowed.

Changewinds HST. (916) 923-3862. 24 hrs., 300/1200/2400/9600. This system specializes in keeping the highest quality files online. TradeWars 1000 v9.03, 18 MHz system, many echomail conferences. Sysop: Ron Deaver.

CompuHelp. (916) 786-3923. 24 hr database-bulletin board system for the Blind and Visually Impaired. Sysop: National Association Of Blind And Visually Impaired Computer Users, Inc.

Dial-Your-Match. (916) 275-1265. Redding. (916) 736-0739. Sacramento.

Hackney's Hideout BBS. (916) 961-1042. 1200/2400 8-N-1. Includes AT&T users conference. Sysop: Rich Hackney.

Night-line Network Central. (916) 427-1107, 300/1200, 8:00 PM to 8:00 AM daily. Forum for individuals, clubs and organizations that want to network nationally with others. Sysop: Eric Thomas.

Phoenix Landing BBS. (916)

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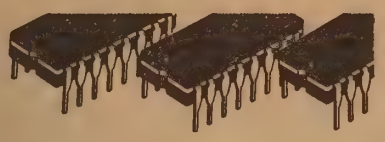

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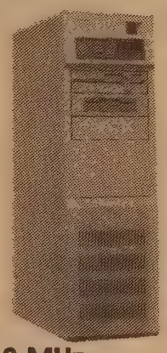

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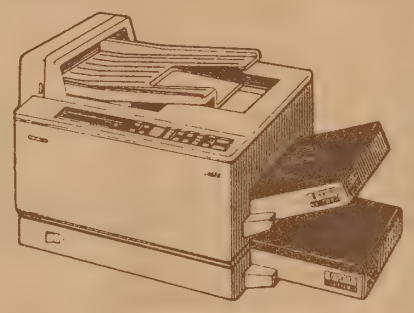

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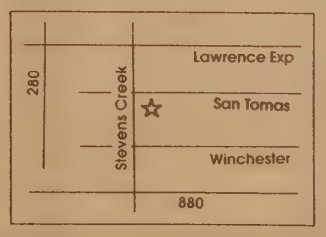

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User Groups

AMIGA

ACCESS (The Amiga And Commodore Computer Enthusiasts Society). Meeting and library sessions 2nd Tuesdays, 7 pm, at Livermore Airport Terminal building. Paul Tibbals (415)829-6053 for details.

Amiga Addicts Anonymous. Meetings: Newsletter, public domain library, demonstrations. Write PO 4669, Walnut Creek, CA 94596. Call: (415)689-3453

Amiga East Bay Info Exchange (AEBIE). Meetings: 2nd Tues.,,7 to 9 pm, 11185 San Pablo Ave., El Cerrito. Write to P.O. Box 485, Pinole, CA 94564.

ASCITEC: The Amiga Science & Technology Users Group. Meetings: 2nd Thurs.,, 5-7 pm, Lockheed, B/157, Rm. 4-C, Sunnyvale, CA. Scientific/Video Applications. Classes available.

AUGment - Amiga Users Group of Silicon Valley. Meetings: 2nd Fri., Write to P.O. Box 1863, Fremont CA 94538 for more info.

AUM—Amiga Users Of Marin. Meetings: Third Wednesdays, 7:30 pm,, room 191, Science Center, College of Marin, Kentfield. Call: Bob Galvan, (415)924-5384.

Bay Area Amiga Developers Group (BADGE). Meetings: 3rd Thurs.,, 8 pm, Turing Auditorium, Stanford University, Stanford, CA. For all Amiga programmers. No membership fee.

CWEST Bay Area Commodore Users Group. Meetings: Third Thursdays, 7:00 pm,, Fort Mason, Bldg. C, Rm. 215. Support C-64/128 and Amiga. New Users welcome. Write PO 146731, San Francisco, CA 94114-6731.

HAUG (Hayward Amiga Users Group). Meetings: 1st Wednesdays, 7 pm,, Mulford Gardens Community Center, San Leandro. Call: Ken, (415)352-0220, or Kenny, (415)351-7349.

Northern California Amiga Club. Meetings: Second Saturdays, 2 pm,, Rico's. Supports Amiga. Write: PO 54, Bella Vista, CA 96008.

SMAUG (Salinas-Monterey Amiga Users Group). Meetings: 3rd Tues., at 7 pm,, Seaside Library, 550 Harcourt Ave., Seaside, CA. Write PO 776, Castroville, CA 95012. Call Richard Binsacca at (408) 678-2518.

SVAUG-Scotts Valley Amiga Users Group. Meetings: 2nd Thursday, 7:00 pm,,The Computer Room, Kings Village, Scotts Valley.

Vallejo Amiga People (VAMP). Meetings: 2nd Tues.,, 6:30 pm, , Software 1st, Vallejo Corners Shopping Center. Contact Bill Braun at (707) 554-0263.

AMSTRAD

Amstrad Word Processing User Group (AWPUG). We are an exclusive Amstrad PCW Word Processing User Group. Call: Dennis Anderson, (707)795-8548.

North American Amstrad Users Group (NAAUG). National User group. For info send S.A.S.E. to NAAUG, P.O. Box 2178, Ferndale, WA 98240.

APPLE

A.P.P.L.E. Co-op. Meetings: National User Group. Call A.P.P.L.E. Magazine. Write: 290 S.W. 43rd Street, Renton, WA 98055. Or call (206) 251-5222 for more info.

Apple Pickers of the Redwood Empire. Meetings: 2nd Sat.,, 10 am, , Santa Rosa JC, Shuhaw Hall, Rm. 1735. Call for sample newsletter. (707) 763-8322.

Apple Sac. Meetings: 1st and 2nd Wednesdays, 3rd Tuesdays, 7 pm,, Madison School on Harrison St. in Sacramento. Newsletter, demos, swap meets, PD files, BBS.

B.E.A.R. Apple II National Users Group. Meetings: send S.A.S.E. to B.E.A.R., 4719 Meridean Ave. #401,San Jose 95118. Printshop & Appleworks files, monthly newsletter.

Diablo Valley Apple Users. Meetings: 1st & 3rd Fri.,, 7 pm, , Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

GravenStein Apple IIGS Users Group. Meetings: 3rd Saturdays, 10:00 am,, Coddingtown Mall, Santa Rosa. User group to explore new and existing programs and uses for the IIGS, to order equipment and material as a group for quantity discounts and to encourage the use and development of the IIGS am,ong current, new and potential users. Call: Aaron Lamar, president, 938-8479.

San Francisco Apple Core. Meetings: 3rd Saturdays, 10 am,, Daly City Library, 40 Wembley. BBS, SIGS, PD/SW library, Help List, Newsletter, more. Call: 398-2335/771-5830.

San Leandro Apple User Group. Meetings: 1st Thursdays, San Leandro HS, Rm. 213. New owners to experienced users welcome. AppleWorks, software and telecommunications SIGs meet monthly. Call: (415) 483-6046.

Society For The Prevention Of Cruelty To Apples. Meetings: 2ndWednesdays, 7:30 pm,, Fremont Main Library, 39770 Paseo Padre Pkwy. Call: Dean Fern, (415) 537-3439.

Tri Valley Apple II Users Group. Meetings: 1st Thurs.,, 6:30 PM. Call Esther Farnstrom at (415) 829-3672 or Dan Balsey at (415) 828-6237 for meeting location.

ATARI

ABACUS (Atari Bay Area Computer Users Society). Meetings: 1st Saturdays, 19th Ave. Diner, 19th & Lincoln Aves., SF. Open to all Atari XL/XE and ST users. $20/yr. Call: (415) 753-8483.

Bay Area Atari Users Group (BAAUG). Meetings: General meeting and ST users meeting 1st Mon.,, 7:00 pm, ,Bracher School, corner of Bowers and Chromite, Santa Clara. On 2nd Tuesdays. 8-bit users meet at H-P, Wolf and Pruneridge, Cupertino. BBS: (408) 247-1257.

COAST (California Original Atari ST Users Group). Meetings: 3rd Wednesdays, 7 pm,, 2105 Bancroft, Berkeley. Call: (415) 945-1949.

Diablo Valley Atari Computer Enthusiasts (DACE). Meetings: 1st Thursdays, DACE supports all Atari computers. Newsletter, demos, raffles, DOMs, and programming SIGs. Call: Larry, (415)689-5160.

Sacramento ST Users Group. Meetings: First meeting Aug. 9, 7 pm,, Computertime Business and Graphic Center, 8040-A Greenback Lane, Citrus Heights. Will offer many SIGs—beginners, DTP, MIDI, telecomm, CAD/graphics, PC/Mac emulators.

San Leandro Computer Club. Meetings: 1st Tuesdays, 8 pm,, San Leandro Community Library. Keith Sammons, (415)887-2008.

AT&T

Bay Area AT&T PC Users Group - South Bay. Meetings: 2nd Wed., 6:30 pm, AT&T Bldg., 1090 E. Duane, Sunnyvale, CA. Call: Joe Lipsig (408) 733-6522. BBS: (408) 462-6329.

Bay Area AT&T PC Users Group. Meetings: 1st Wed., 6:30 pm, Alternates between Oak. & SF, Call: Joe Mahoney (415) 586-8376. BBS: (415) 829-6027.

Tri-Valley AT&T Computer Users' Group. Meetings: Third Thursdays, 6:30 pm,, 5794 West Las Positas Blvd., Pleasanton. Call: Ed Novi, (415)224-2996, Joe Mahoney, (415)540-2219.

BLIND USERS GROUP

International Blind Users Group (I-BUG). As a member you will receive 6 issues of Compu-Help-On-Disk as well as your own ID and password to CompuHelp. $20/yr. Call: (916) 783-0364.

CAD/CAM

San Francisco Bay Area CADDCA User Group. Meetings: 3rd Wednesdays, 6:30 pm,. Call: Lupe Chavarria, (415)449-0230.

San Francisco/Marin AutoCAD Users Group. Meetings: 2nd Tuesday evenings. $20

Associations

Account-A-Call National Users Group (AACNUG). First meeting in Universal City June 19–20, 1989. National user group for Account-A-Call service bureau and software customers with members drawn from nearly 1000 companies nationally. Call: Shelly Schoenberger, 1-800-447-TUMS.

AI Expert Systems for Business (ESB). Meetings: 1st & 2nd Suns., San Francisco. Business PC expert system solutions. Determine market opportunities, group research projects.

ANImated People User's Group In the spirit of Max Headroom and "Hitchhiker's Guide," we're attempting computer digitization/animation of real-people personalities. San Jose. Call: Tom, (408)226-9225.

Artificial Intelligence Special Interest Group (AISIG). Call Rita Zokaei, (415)574-8225.

Artificial Intelligence Special Interest Group. Meetings: 2nd Thurs. Engineering 101,Santa Clara University. Independent nationally recognized group studying and developing AI and artificial neural networks. Call Kent Byron (408)244-8739 for info.

Association for Women in Computing. Meetings: 1st Wednesday of each month, 6:30 PM, Stagecoach Restaurant, 44 Montgomery St., San Francisco. Call 655-3110 for information.

BAY HPX. Meetings: 2nd Saturday Laptop & handhelds. Call Jim Horn or Michael Felsenstein: (707)794-3130/(415)564-8279.

Bay Area CYMA Dealers Association. Meetings: 2nd Tuesdays, Thursdays; 4:30-6:30 pm, San Mateo. Networking and support for McGraw-Hill accounting software consultants and retailers. Call: (415)345-5955.

Baytalk Computer Users Group. Write: PO 369, Berkeley 94701. BBS: (415)864-6430, 300/1200, 8-N-1.

Business Computerization User Group. Group forming. Write 6938 Buckingham Blvd., Berkeley, CA 94705, or call (415)848-2080.

California Genealogical Society Computer Interest Group. Meetings: 2nd Sat.- odd months Genealogical Society Library, San Francisco.

Computer Associates Users Group. Meetings: 3rd Wednesdays, 6:30 pm, 1500 Van Ness Ave., Call: Brenda Goldstein, (415)864-6770.

Computers & Law Assoc. Meetings: McGeorge School of Law, 3200 Fifth Ave., Sacramento, CA 95817.

CYMA/McGraw-Hill Users Group Meeting. Meetings: Monday, October 24, 3:00-5:00 pm, McGraw-Hill Publications Building, 425 Battery St., San Francisco. Meet CYMA professionals and learn how to get the most from your software. Call: (415)839-7466.

Digi-Dunces Un-Ominous. A meeting ground and exchange for the fat-of-finger, the hopelessly analoguish, and patients of the electrogratification disease. Presently a confederation of various interests & occupations keeping one another apprised of relevant events & experiences. Contact: SASE, PO 884334, San Francisco 94188.

East Bay User Group. Meetings: 3rd Wednesdays, 7 pm, 12500 Campus Dr., Oakland, Rm R-7, Call: (415)436-2453.

Entrepreneurial Support Group. CEO. Meetings: SASE, P.O. Box 2781, San Rafael, CA.

Ham Radio Computer Packet Group. Meetings: 2nd Fridays, 8 pm, Salvation Army, 4600 Appian Way, El Sobrante. Learn how to use your computer to broadcast all over the world with the fascinating world of Ham Radio. Call: Bob Fields, (415)237-3761.

High Tech Gays. Meetings: 2nd Sundays, Part of the National Gay & Lesbian Task Force. Call: (408)993-3830.

High Technology Entrepreneurial Council. Meetings: Wednesdays, 6:30 pm, Piedmont Community Center, 711 Highland Ave., Piedmont. HTEC is a nonprofit corporation dedicated to providing software developers and other high tech entrepreneurs a forum for developing marketing strategies, building business relationships and exchanging experience and information. Call: Rachel Munoz, (415)339-3895.

Microcomputer Users of Santa Cruz Fog Affiliate #116. Meetings: 2nd Thursdays, Green Acres School, 966 Bostwick Lane, Santa Cruz. This facility is wheelchair accessible. Call: Barney, (408)476-0504.

MORE: Modemusers Of The Redwood Empire. Meetings: Thurs. July 14; Fri. Aug. 9; 7 PM, Roundtable Pizza, Highway 12 @ Stony Pt. Free membership for modemers who want to get together and talk about local boards. Includes novices to techno-wizards. Call (707)546-5203.

Mt. Diablo Technology Association. First meeting: Wednesday, Sept. 14. Others monthly at Michael's Restaurant in Walnut Creek. Lunch and evening meetings, send for calendar. Back by popular demand. Will explore common concerns in industry and educational developments. Call: Deborah Scott, (415)932-4828

Network Users Group (NUG). Next meeting: July 7. Call for location and time. Panel discussion of workgroup software with several major software manufacturers represented. Call (415)655-6500 for details.

North Bay Users Group (NBUG). Meetings: 2nd Thurs. 7:30-10 PM, 201 Maine St., Vallejo, CA. Family Computer Club dedicated to all forms of computing.Determine market opportunities, group research projects. (415)564-6669.

Northern California User Group. Meetings: Every 3 months. For schedule, Call: Ken Lebeiko, 881-2652.

Nota Bene User Group. Meetings: 3rd Tues. or Thurs., 7:30 PM Berkeley or Peninsula. For location and date, call Thomas Ross, (415)845-2410.

PASS: Professional Association of Secretarial Services. Meetings: 2nd Saturdays 11:30 AM, Oakland or San Mateo. Call: Nina Feldman,(415)655-4296.

Pracsa, for Sysops & Users. Meetings: 2nd Wednesdays, 6:30 pm, Coco's Restaurant, 1305 South Mary, Sunnyvale. Call: Bill Strouse, (408)453-3321.

ProTel (Professionals In Telecommunications) Meetings: Monthly. Holiday Inn, 1221 Chess Drive, Foster City. ProTel is a network organization for people interested in telecommunications.Leave a message at (415)227-5637 for information.

San Jose User Group. Meetings: First Wednesdays. For location and time, Call: Hanna Varniz, (408)984-8484.

SEF Marketing SIG. Meetings: 4th Thursdays, Teknowledge, 1850 Embarcadero, Palo Alto. Call: Don Morrison, (408)425-7222, or (415)854-7219.

Silicon Valley Computer Society. Contact Kent Stafford (408)286-2969. Or write to 2464 El Camino Real #190, Santa Clara, CA 95051.

Software Entrepreneur's Forum (SEF). Meetings: 3rd Thurs. 1875 Embarcadero Rd., Palo Alto. Helps individual software developers and startup software companies. Call for complimentary newsletter. (415)854-7219.

Technology Executive Roundtable (TER)Meetings: Fourth Tuesdays, 6:00 pm, Santa Clara.Call: Jenny Hoyt,(408)997-1826.

The Hispanic Computing Association. Meetings: 3rd Thursdays, DataDesigns/American Music, 2388 Mission St., SF. Spanish/English Computer Information, PC & Mac presentations and solutions. Call: Juan Lira, (415)824-8337.

Valley of the Moon Users Group. Meetings: 2nd Saturdays monthly, 10:00 AM, Moose Lodge, Sonoma. All systems welcome. BBS, 300 BAUD, 24 hours, (707)996-7922.

Women's Special Interest Group. 7:30 pm, Hewlett-Packard, 5301 Stevens Creek Blvd., Santa Clara. For all women interested in computing. Call: Rita Zokaei, (415)574-8225

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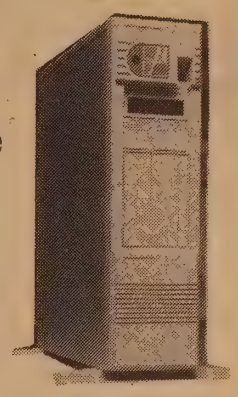

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ACCESS (The Amiga And Commodore Computer Enthusiasts Society). Meetings: 3rd Tues., 7:30 pm, Community Room of Homestead Savings & Loan, 999 E. Stanley Blvd., Livermore, CA. Contact Ron Kremkow at (415) 449-1784.

Campbell Chapter of 64/More Commodore UG. Meetings: 4th Tues., BBS (408) 946-6154.

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Commodore Connection Users Group. BBS (415) 458-1005.

Commodore Users Group Santa Cruz. Meetings: 3rd Wednesdays, 2395 Delaware Ave., Santa Cruz. Call: Ruth Wieland, (408) 688-2843.

Cupertino Chapter of 64/More Commodore UG. Meetings: 3rd. Sat., BBS (408) 946-6154.

CWEST Bay Area Commodore User Group. Meetings: 3rd Thurs., Fort Mason, Bldg. C, Rm. 215. Supports C-64/128, Amiga. Write P.O. Box 146731, San Francisco, CA 94114-6731.

Diablo Valley CUG. Meetings: 3rd Thurs., 7:30 1331 Concord Ave, Concord., PO 27155, Concord, CA 94527.. For info write: Box 27155, Concord, CA 94527. Or call (415) 932-2413.

F.U.N.H.U.G. - Fremont, Union City, Newark, Hayward User Group. Meetings: 3rd Thurs., 7:30 pm, Newark Public Library, 6300 Civic Terrace Ave., Newark, CA. A user-organized, user-operated user group not affiliated with any computer or software manufacturer or distributor.

Fairfield Commodore User Group. Meetings: 1st & 3rd Mon., Solano County Education Bldg. Write to P.O. Box 2778, Fairfield, CA 94533-9998 for info.

Marin Commodore Users Group. Meetings: 2nd Wednesdays, Redwood High. Call: 883-7748; BBS 883-2558—300/1200.

Mother Lode Commodore Users Group. Meetings: 2nd & 3rd Thursdays, 7:00 pm,, Calaveras County Water District Board Room. Supports the Commodore PET, VIC, 64, Plus/4 C-16 & 128. Call: Larry Anderson, 754-5530.

Napa Valley Commodore Computer Club. Meetings: Third Mondays, Rapoport's, 2225 Brown St., Napa. Write to: PO 2324, Napa, CA 94558.

North Valley Chapter of 64/More Commodore UG. Meetings: 2nd. Sat., BBS (408) 946-6154.

PLUG (The Plus/4 Users Group). No regular meetings. Over 800 members internationally. Write to P.O. Box 1001, Monterey, CA 93942 for info.

San Jose Chapter of 64/More Commodore UG. Meetings: 1st. Sun., BBS (408) 946-6154.

Silicon Valley Commodore Club. Meetings: 4th Wed., 7 pm, Hewlett-Packard, 5301 Stevens Creek at Lawrence & 280. C-64, C-128, & Amiga.

DATAEASE

Bay Area DataEase Users Group. Meetings alternate between San Francisco and Palo Alto. Contact Kermit Carter at (415) 945-7817 for info.

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Bay Area Desktop Publishing User's Group. Meetings: Thursdays at 2601 College Ave., Berkeley. For more info call Dr. C.J. Wallia at (415) 848-8200..

Desktop Publishing SIG/GMUG. Meetings: 1st Tuesdays, 7 pm,, San Francisco Business Times Building, 325 Fifth St., San Francisco. Call: 641-GMUG

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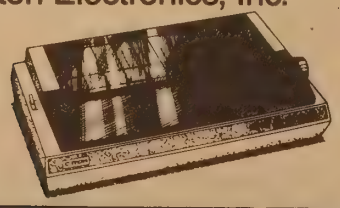

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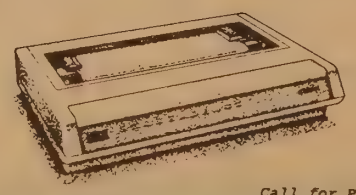

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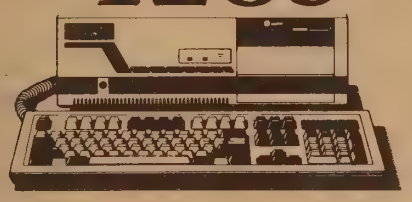

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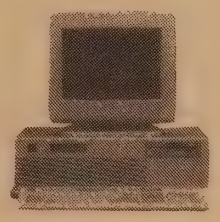

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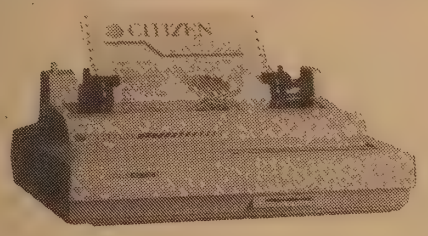

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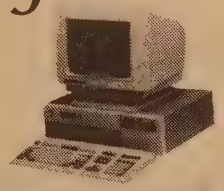

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C Language SIG/SFPCUG. Meetings: 2nd.Mondays, 6:30 pm,, Kam's Rest.arant 2068 Center St., Berkeley. Call: Debee Norling, (415)644-1855.

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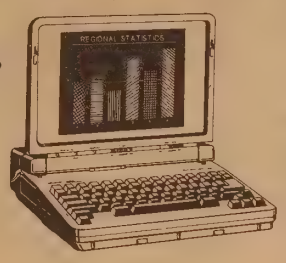

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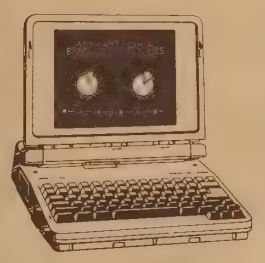

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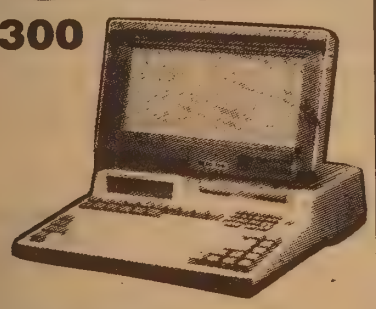

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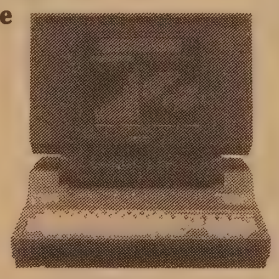

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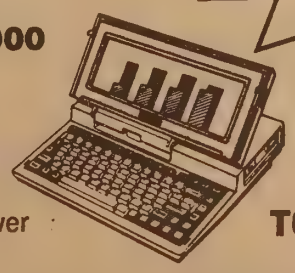

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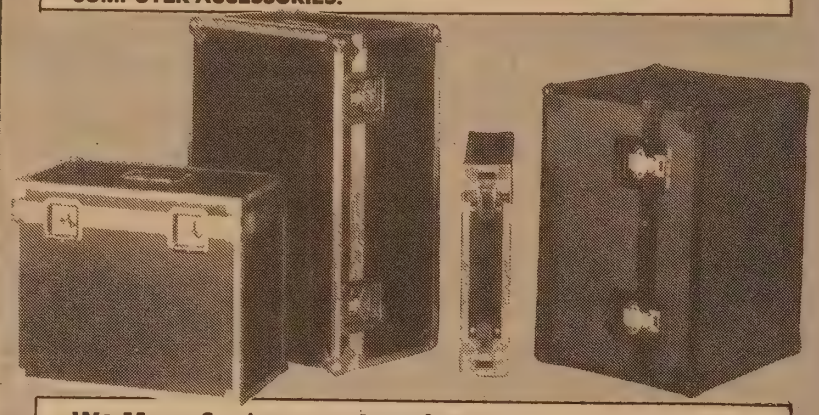

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Silicon Valley Computer Society. Meetings: 4th Wed., 7:30 pm, Oak Room, at Hewlett Packard, on Pruneridge in Cupertino. Call Kent Stafford for info at (408) 286-2969.

Silicon Valley FOG. Meetings: 3rd. Wed., 7:30 pm, Saratoga Community Library, 13650 Saratoga Ave.

Solano Community PC Users Group. Meetings: 3rd Monday, 7 pm,, Fairfield High School.

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BAKUP. Meetings: 3rd Tuesdays, 7:30 pm,, Albany Senior Center, 846 Masonic Ave., Albany. Call: Bob Athey, (415) 526-3541.

Kay+Fun Peninsula Computer Club. Meetings: 7:30 pm,, Social Room, 222 Laurel St., San Carlos. CP/M + DOS library. BBS: (415) 572-8219. Call: 593-9981.

San Francisco Computer Society. Meetings: 1st Monday, 7:00 pm,, Homestead S&L, 5757 Geary Blvd., San Francisco CP\M and DOS machines. No BBS. Call Ralph Gallagher, (415) 929-0252 for information.

MACINTOSH

A32, The Association Of Apple 32 Users. Meetings: 2nd Saturdays, GTE cafeteria, Mountain View. Membership includes monthly meetings, access to Disk of the Month, full BBS priviledges, the ICON newsletter, SIGs, discounts, and much more. Call: 263-0398.

APX, Inc. Macintosh. A national intercorporate computer users information service with several communications channels including an electronic forum on MacNet, newsletters, and local and national meetings and special panels. Several local chapters exist, you can start one too. Call: (408)745-0665, or write to: Mike Bailey, APX, 370 Altair, PO 175, Sunnyvale, CA 94086.

Bay Area MacForum. Meetings: 3rd Saturdays, noon, Daly City Library, 40 Wembeley. BBS, SIGS, PD/SW library, Help List, Newsletter, Newcomers Meeting, more. Call: (415) 771-5830/ 398-2335.

Berkeley Macintosh User Group (BMUG). Meetings: every Thurs., 6 pm, Physical Sciences Lecture Hall, UC Berkeley Campus. SIG meetings on Mondays, Tuesdays & Wednesdays. Call for this week's topic. (415) 849-9114. BMUG, 1442A Walnut St., #62, Berkeley, CA 94709.

Christian Macintosh User Group, San Francisco Chapter. Meetings: 2nd Thurs., San Francisco. Newsletter and support available. Contact Rick Thrasher at (408) 437-1913. Bible Study and DTP SIGS.

Christian Macintosh User Group, Silicon Valley Chapter. Meetings: 1st Thurs., San Jose. Newsletter and support available. Contact Rick Thrasher at (408) 437-1913.

Desktop Publishing SIG/ GMUG. Meetings: 1st Tuesdays, 7 pm,, San Francisco Business Times Building, 325 Fifth St., San Francisco. Call: 641-GMUG.

Diablo Valley Apple Users. Meetings: 1st & 3rd Fri., 7 pm, Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

EBMUG (East Bay Macintosh Users Group). Meetings: 3rd Tuesdays, 7:30 pm,, 724 Allston Way (@4th) near University Ave., Berkeley. Members receive free PD software. Bring blank disk. Meetings open to everyone. Call: Terry Pennington, (415) 486-0147.

GMUG (San Francisco's Macintosh User Group for Gays and Lesbians). Meetings: 3rd Wednesdays, 7:30 pm,. Call: 641-GMUG.

HyperCard SIG/GMUG. Meetings: 7 pm,, 78 A Mars St., San Francisco. Call: 641-GMUG.

Mac Diablo Users Group (MDUG). Meetings: 3rd Tues.,, Community Room, Glendale Federal Savings, 3101 Crow Canyon Road, San Ramon.

MacCruisers — Santa Cruz. Meetings: 2nd Wed., Jade Street Community Ctr. at 45th Ave., Capitola, CA.

Macintosh SIG/SEF. Meetings: 7 pm,, 2nd Tuesdays, Apple Cafeteria. Call for dates and time. Tony Meadow, (415)644-9400.

Macintosh Users Of ComputerWare (MUCoW). Meetings: 2nd & 4th Wednesdays, 7:00 pm,, Above ComputerWare store, 490 California Ave., Palo Alto. Call: (415) 496-1051 or 496-1033.

MacNexus — Sacramento's Macintosh Users Group. Annual dues, $30, includes monthly newsletter. Contact: MacNexus, PO 163058, Sacramento, CA 95816; (916)448-6481.

Macs Of Marin (MOM). Meetings: 2nd Thursdays, 7 pm,, Redwood High School, 395 Doherty, Larkspur. Call: Steve Salzman, 459-5707.

Silicon Valley Computer Society's Macintosh SIG. First meeting: September 21, 7:30 pm,, 6th floor offices of Arthur Young and Co., Mitsubishi/Plaza Bank Building, 55 Almaden Blvd., San Jose. A forum for shared ideas. First meeting will be a demonstration of HyperCard. Other demos are planned for future meetings. Call: Dennis Dawson, (408) 947-5550.

Stanford Macintosh Users' Group (SMUG). Stanford community membership: $25; public membership: $35 per year. Call: 723-SMUG. BBS: (415) 723-7685.

TI-West Meetings: 2nd Fri., 8 pm, Chabot College, Rm. 600, 25555 Hesperian Blvd., Hayward, CA. Access to a variety of pub. domain software, education modules "problem solving" peripheral committee.

Tri-Valley Macintosh User's Group (TMUG). Meetings: 1st Thursdays, 7 pm,, 4695 Chabot Dr., Rm 114, Hacienda Business Park, Pleasanton. Newsletter, large P/D library. Call: James (415) 426-8756 eves, Mike, (415) 838-6165.

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Mac Diablo Users Group (MDUG). Meetings: 3rd Tuesday, 7:30 pm,, Community Room, Glendale Federal Savings, 3101 E. Crow Canyon Rd., San Ramon. Small, helpful group.

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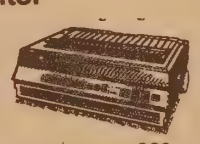

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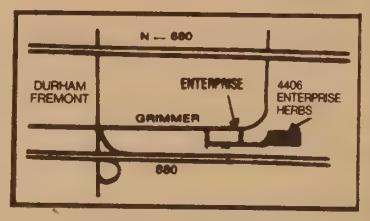

VISA

Microsoft Word Users Group. Meetings: 4th Mondays, 7:30 pm, - 9:30 pm,, Hewlett Packard-Cupertino-Oak Room Bldg., 48 Pruneridge, 100 yds. east of Wolfe off Hwy 280. August 22: Chris Donner, Pres. Access Softek on DRAGNET for Text Retrieval and Management. Call: Bill West, 356-8805.

Mirosoft Word SIG of the SVCS. Contact Bill West (408)356-8805.

MINDSET

San Francisco Mindset Users Group. Call: (408)270-0251.

MORROW

BAMDUA (Bay Area Micro Decision Users Assoc.). Meetings: 3rd Tues., 7:30 pm, Albany Senior Center,846 Masonic Street (just north of Solano) in Albany, CA. Voice:(415) 534-4257. BBS:(415) 654-3882. P.O. Box 5152 Berkeley CA 94705.

San Francisco Computer Society. Meetings: 1st Mon., 7:00 PM. Homestead S&L, 5757 Geary Blvd., San Francisco. MS-DOS machines, Osborne, Kaypro, Morrow. Call Ralph Gallagher 929-0252.

NEC

Bay Area NEC/100 Users Group. Meetings: 2nd and 4th Wednesdays. Locations vary. For those interested in laptops, especially Kyocera 80C85 type (NEC 8201a, Radio Shack Model 100 or 102. Call (415) 658-1889.

NOVELL

Novell Users Group. Meetings: Third Wednesdays, 6:30 pm,, Coco's restaurant, 1305 South Mary, Sunnyvale. Newsletter, bulletin board, product demos, assistance for beginners. Call: Bill Strouse, (408) 453-3321 days; modem, 24 hrs: (408) 453-3326.

ORACLE

Northern California Oracle UG. Meetings: Call (408) 738- 8330 for info. Meets every 3 months at different Bay Area locations. Newsletter published between meetings.

OSBORNE

San Francisco Computer Society. Meetings: 1st Monday, 7:00 pm,, Homestead S&L, 5757 Geary Blvd., San Francisco. CP\M and DOS machines. No BBS. Call Ralph Gallagher, (415) 929-0252 for information.

PROGRAMMING LANGUAGES

APL Bay Area Users' Group. Meetings: 2nd Monday, 6:30 pm,, I.P. Associates, 425 Sherman Ave., Suite 200, Palo Alto.

C Language SIG/SFPCUG. Meetings: 2nd.Mondays, 6:30 pm,, Kam's Resturant 2068 Center St., Berkeley. Call: Debee Norling, (415)644-1855.

COBOL And SQL Users Club Call: Dr. Badshah K. Mian, (415) 337-1787.

dBASE SIG/SFPCUG. Meetings: 3rd Thursdays, 7:30 pm,, 6 No. San Pedro Rd., San Rafael. Call: John Stephenson, (415) 488-0342.

dBASE Users Group of Marin & Northbay. Meetings: monthly, call (415) 488-0342 for info. Open membership, beginners through developers.

dbDVLPRS. Meetings: 2240 Buchanan, Ste. 5, San Francisco. Includes dBASE II, III, VI, Clipper, Foxbase, dBXL, Quicksilver and others. Call: Bruce Leandro, (415) 923-0659.

East Bay User Group. Meetings: Last Thursday of each month. For location and time, Call: Scott, 451-5316.endro Computer Club..

Forth Interest Group of Silicon Valley. Meetings: 4th Sat., 1 pm, Oak Room, at Hewlett Packard, on Pruneridge in Cupertino. Call George Shaw at (415) 276-5953 for info.

Forth Interest Group, North Bay Chapter. Meetings: 2nd Sat., 1 to 5 pm, South Berkeley Community Library, corner of Russell and Martin Luther King Junior Way. One block north of Ashby BART station. Contact George Shaw (415) 276-5953.

Modula-2 SIG/SFPCUG. Meetings: 3rd Thursdays, 7:30 pm,, Call: Richard Lesnick, (415) 398-3587.

Northern California User Group. Meetings: Every 3 months. For schedule, Call: Ken Lebeiko, 881-2652.

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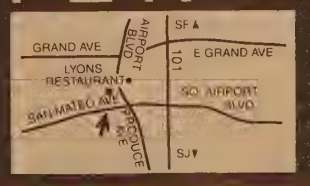

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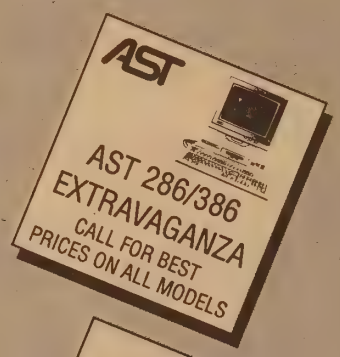

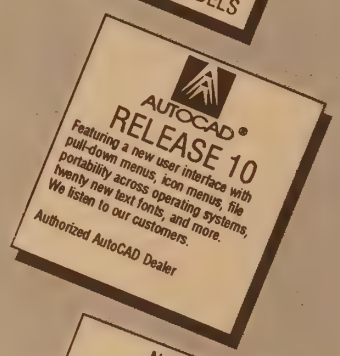
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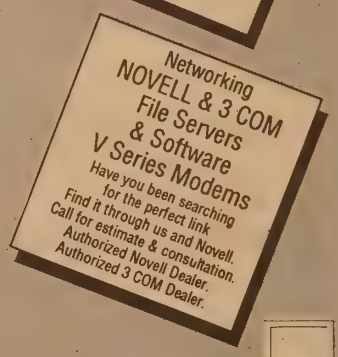

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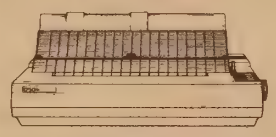

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Prolog Forum. Meetings: Monthly, 2nd Thursday 7:00 pm,, Belmont and various locations. Prolog Forum is a group dedicated to supporting users of the Prolog computer language in artificial intelligence. Call Mark A. Epperson at (415) 594-9981.

R:BASE User Group Of The Redwoods. Meetings: Third Wednesdays, 3 pm,, Sonoma/ Marin County rotating meeting places. Call: Jim Ray, (707)886-5315.

San Jose User Group. Meetings: First Wednesdays. For location and time, Call: Hanna Varniz, 984-8484.

SEF OOP SIG. Meeting: Third Tues., 7 pm,, Parc Place Systems, 2400 Geng Rd., Palo Alto. Call: Dean Ritz, (415)691-6727 or (415)854-7219..

Silicon Valley Paradox Users Group. Meetings: 3rd Tuesdays, except December. For information, Call: Emily Alford, (408)285-0348, or LaTulipe at (408)646-0297.

TANDY/RADIO SHACK

BYTE Bandits of America. Meetings: Campbell. Call (408) 379-2774 for info.

CoCoByte. Meetings: Last Saturdays, 2 pm,-4 pm,. Supporting the Tandy Color Computer 11,2 or 3 with Spanish, English & French software. Write to: CoCoByte, c/o Fabian Rodriguez, A.A. 5976, Cali-COLOMBIA.

Model 100, 102 & 200 Support. Meetings: Int'l support by mail, voice & BBS. Free on-line weekly news letter. Write Club 100 984 Hawthorne Dr., Walnut Creek, CA 94596. Or call (415) 937-5039.

Tandy 1000 (The Mug). Mail-based user group w/ monthly newsletter. Not for PC jrs. Members communicate through newsletter. $8/yr. fee; checks to: Daniel Tuma, 30 Arjang Ct., Alamo, CA 94507-2041.

TRS Nybblers. Meetings: 2nd Fri., 8 pm,. Chabot College, 25555 Hesperian Blvd., Hayward. MS-DOS, CP/M, laptops, Mod 1, 3, 4, Mod 2, 12, 16, 6000. Bud Gallagher (415) 522-5960 or Bruce Jarvis (415) 846-3575.

REVELATION

Bay Area Revelation UG. Meetings: 1st Tues., Call (415) 759-1210.

ROBOTICS

Home Robots Now! Meetings: 2nd Thursdays. A two year-old user group currently working on an autonomous robot for navigating in a house. Call: James P Cruse, (408)475-7444.

SANYO

Sanyo PC Hackers. Meetings: 1st Wed., 7 pm, Mercury Room, Mercury Savings & Loan, 99 El Camino Real, Menlo Park.

SOLOMON

San Francisco Solomon III Users Group. Meetings: last Wed.,,odd months 6-9 pm, Price Waterhouse, 555 California St. 36th Fl., San Francisco. Annual membership - $50; corp. membership - $75.

Solomon User Group of Silicon Valley. Meetings: For info contact Grihalva Associates, 39899 Balentine Dr., Suite 175, Newark CA 94560.

SUN

Sun User Group. Call: (415)336-4343.

S—100

S—100 Business Users Group. Meetings: 4th Tues., 7:30 pm, Santa Clara Univ., Rm. 101, Bannan Engineering Bldg. CP/M & MS-DOS libraries. BBS: (408) 262-5150, 8-N-1,2400/ 1200/300.

TELEBIT

TEXAS INSTRUMENTS

Bay Cities User Group. Meetings: 1st, 3rd, 5th Wednesdays, 7:30 pm,, 1637 Morgan, Mt. View. Call: Jack, (415) 964-4344.

Brea 99'ers Users Group. Meetings: 1st Mon., 7:30 pm, Mercury Savings, La Habra, CA.

San Francisco 99ers. Meetings: 3rd Saturdays, 3751 Elston Ave. Call: Fred, (415) 530-8335.

Thousand Oaks Personal Computer Club (TOPCC). Meetings: monthly. Call: (714) 686-0336.

TIMEX/SINCLAIR

Timex Sinclair East Bay Z80 Users Group (TSEBZUG). Russ English, (415) 465-3116.

Timex Sinclair Peninsula Users Group (TSPUG). Contact George Mockridge, (408) 878-1773.

Timex/Sinclair Users of Silicon Valley (GUTS/SV). Meetings: each Sat., 9 am, Stanford Univ., Jordan Hall (quadrangle), Math Bldg. RM 380C. SW library & newsletter. For topic check PDSE BBS in Sunnyvale (408) 735-7390, 300/1200, 8-N-1, 24 hrs.

UNIFY

Unify Users Group. Information exchange, presentations and problem solving related to Unify products. Email distribution is available for those connected to USENTE or UUCP mail at UUg-dist@mrspoc. Call: Steven List 961-6112.

UNIX

SVNet. UNIX User Group. UNIX Meetings: 3rd Tuesdays, 10500 DeAnza, Cupertino. Talks on UNIX topics, books, and reviews. Call: Ralph Barker, (408) 248-8649.

VENTURA PUBLISHER

San Mateo Ventura Users' Group. Meetings: 2nd Mondays, 7:00-9:30 pm,, 619 Bradford, Redwood City. Workshops, lectures, demonstrations of new techniques, shortcuts. Call: Eleanor Church, (415) 726-3181.

Ventura Desktop Publishing Users Group. Meeting: 1st Tuesday, 7-9:00 pm,, 1650 S. Amphlett Blvd., San Mateo. Newly formed group. Call Eleanor Church at (415) 726-3181, or Pam Sheble at (415) 574-2003 for information.

VPUG (Ventura Publisher User Group) Meetings: 3rd Mon., 6:30 pm, Fort Mason, Bldg. A., Rm. 5 San Francisco, CA

Send your BBS, Association, or User Group Listing to:

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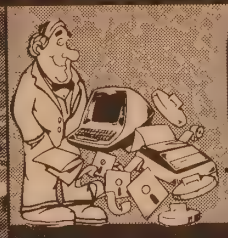

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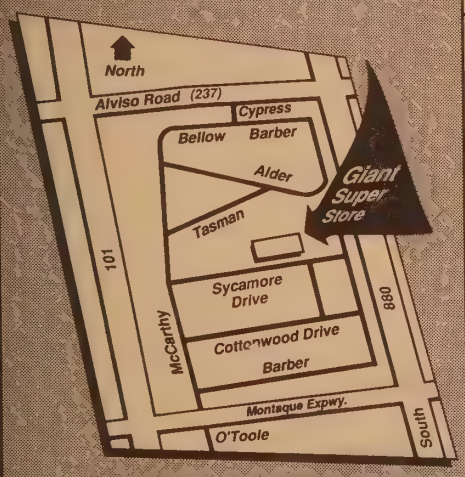

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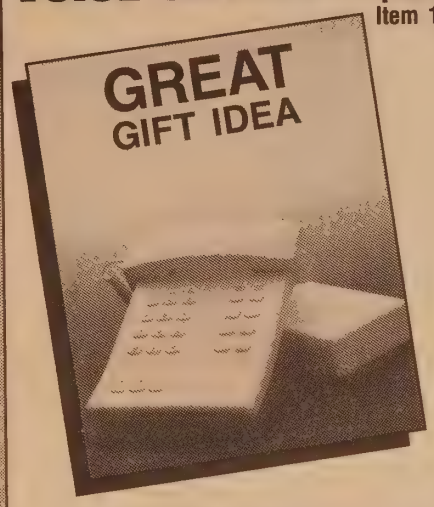

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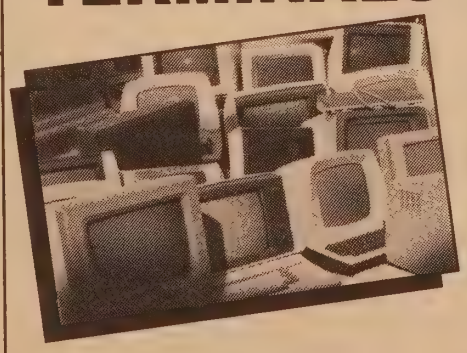

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171	WYSE60	$325
172	WYSE75	$175

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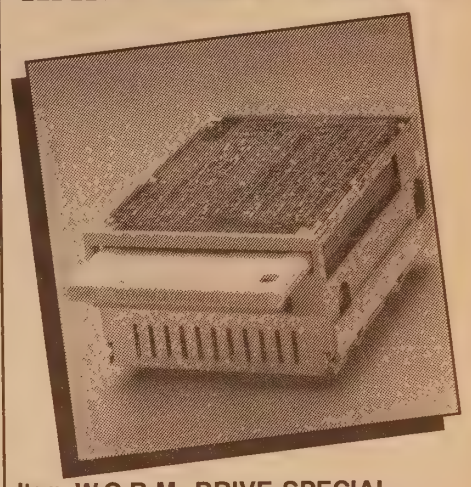

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117	Apple II, II+, IIE Host Adapter	$29
	Adaptec Hard Disk Controllers	
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120	2071 XT RLL 1 Drive, ½ Card	$49
121	2072 PC/XT RLL	$69
123	2322A AT to ESDI (386)	$259
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126	4000 SCSI to ST506/412	$89
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131	5580 SCSI to SMD	$175
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134	OMTI 6510 XT, ESDI	$89
135	Manuals	$8 each
136	Cables Available — Ask for Pricing	

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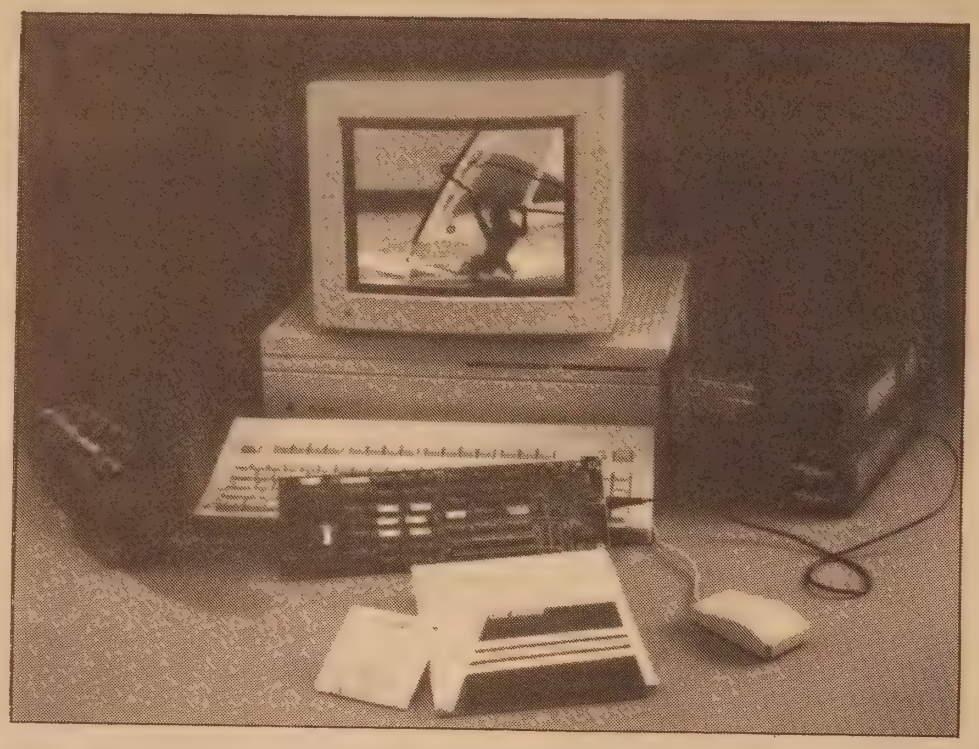


New QuickCapture Lowers Cost Of Real-Time Frame Grabbing

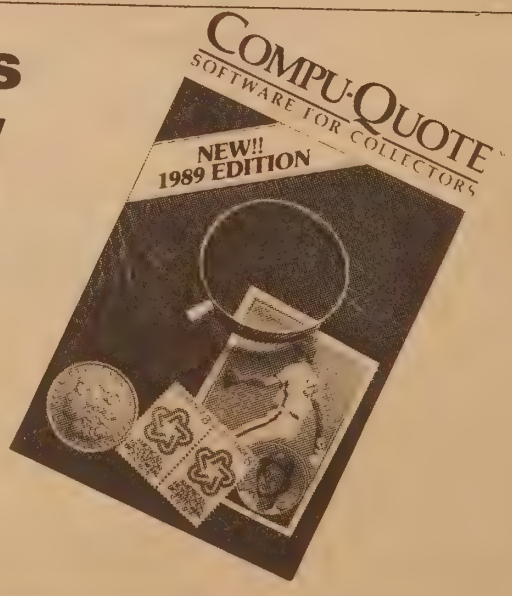
QuickCapture is a new frame grabber board and software package offering 640 X 480 square-pixel resolution, 64 gray levels, cable, and several advanced image processing functions including editing, enhancing, and analyzing images. QuickCapture provides a low-cost alternative to Data Translation's 256 gray-level predecessor. QuickCapture "grabs" images from ordinary video cameras, VCRs, and still-video devices in real time (1/30 second). Once captured, images can be processed, enhanced, and analyzed. They can then be displayed, printed, or exported as TIFF, PICT, DT-IRIS, RIFF, and EPSF files for use in draw, paint, database, or page-layout applications. You must have at least a Mac II to use QuickCapture. ($995) Data Translation, 100 Locke Drive, Marlboro, MA 01752-1192. (508)481-8620.

Time And Material Collection System

Information Management Systems has released its Productivity Analysis System, a local area network system of up to 96 collection terminals. The system is used to collect employee time and attendance, job labor, material resources, and company activity. PAS uses bar code technology, minimizing errors usually associated with key entries, to capture raw data (real-time or buffered) scanned by employees via bar code menus. With buffered terminals, the host computer can collect information and remain free for other applications. The system is easy to use and eliminates manual computations of employee time and handwritten job activity for job costing. Data is exported to other PCs or mainframes; file backup and network updating is automatic. Four software environments allow for Setup, Data Collection, Report Writing, and Job Status. IMS uses a low-cost data collection terminal that features a bar code wand, manual key pad, mag-stripe reader, and a 16 -character digital readout providing the user with operational feedback. Optional configurations include laser wands, printers, and auto discriminating wands. A Macintosh Plus with a hard drive, or better, is required. Information Management Systems, 3684 Forest Park Blvd., St. Louis, MO 63108. (314)652-6715.

Software For Collectors Offered By Compu-Quote

Compu-Quote is a company that specializes in software for collectors. It currently markets three types of collectors software: *Coins/Plus, Stamps World*, and *Card/Fax*. These applications feature a built-in database containing complete descriptions and recent market prices for items in each of the collectibles' areas. In addition to inventory value information, easy-to-generate reports give collectors the date and price of items bought and sold, profit percentage, and a wish list of items needed to complete a collection. The programs automate the bookkeeping process for investment tracking, collection control, tax, insurance, and estate planning purposes. Annual Market Value Update Disks for each program can be ordered for $25 for the first version and $15 for each additional version. Compu-Quote, 6914 Berquist Ave., Canoga Park, CA 91307. (818)348-3662.



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A low cost 20 Mhz system is a great solid entry level 80386 product. Overall cost is close to 16 Mhz & 20 Mhz 80286 systems and yet maintaining the ability to run all current and future 80386 Software. This system is based on a US manufactured main board running at 16 or 20 Mhz. The system includes:

* 16/20 Mhz 80386SX Main Board(See col 7 on table below)
* 1 MB Memory
* 40 MB Hard disk w/ 40 ms access
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* 1.2 MB Floppy Disk
* Hi-res amber monitor
* Graphics controller with printer port
* AT style keyboard

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CDS 386 Model 25

This 25 Mhz system is a great 386 value based on our solid 80386 Chips and Tech main board. This system will give you the ability to run all 80386 Software or chose our 80386 Model 20 and save $100. (or custom configure any system from the Main board Table below.
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XT Turbo — 4 Mhz
Bullet 286-10 — 12.6 Mhz
Bullet 286-12 — 15.4 Mhz

XT Solutions (Columns 1,2,3 & 6) Upgrade your XT system to a 12.5 Mhz 80286 AXT Main Bd. w/1 MB DRAM only . . . . . .$ 449.
Add a 1.2 Meg Floppy drive kit for **$ 128** and your system performs like systems costing Twice as much. If you want to use existing 150 ns Memory we have AXT boards starting at . . **$ 179** for our 7.2 mhz XT replacement bd or **$ 199** for the 8 or 10 Mhz 80286 replacement for your PC or XT. This board is 100% compatable withexisting XT boards and Keyboard resulting in the lowest total upgrade cost.

AT Solutions (Columns 3, 4 & 6) Replace your slower AT mother bd with our 12 Mhz Baby AT (fits original AT) for only...**$ 239!** This board runs as fast as a 15.6 Mhz AT with a Norton SI of 15.2 with existing 120 ns memory. Get our 16 Mhz version for $ 329 or look at the 386SX as a solution to future 80386 software requirements.

80386SX Upgrade Solutions (Column 7) 16 and 20Mhz 80286 performance looks impressive but for just a little more you can have a 16 or 20Mhz 80386SX. All the performance benifits of running 386 software! From **$589**

80386 Solutions (Columns 8 & 9) 80386 Upgrade with Baby sized or full size 386 is your solid, reliable 386 solution. Based on the Chips and Tech chip set and a 80386-20 pushed to 25.. (Add $ 200 for -25 CPU) This Board is available in either baby or Full size. Full specs below. Special offer.. 386 Board w/1meg **$ 1099**

Compaq Portable Solution (Column 6) The Bridge 286/CP is the ideal Upgrade for that trusty Compaq. 12 Mhz Zero wait state performance with up to 6 MB of on board memory makes this a long term winner. Board with no memory.... **$ 495**

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CPU	80286-8	80286-8/10	80286-10/12	80286-12	80286-16	80286-12	80386SX-16	80386-20	80386-20
Math Co-po	80287-2/3	80287	80287	80287	80287	80287	80387SX	80387	80287/80387
Cache Ram	N	N	N	N	N	N	N	N	N
Dram Type	64/256K	64/256K	64/256K	64/256/1024K	64/256/1024K	256k/1M SIMMS	256/1M SIMMS	256/1M DIP	256/1M Slp/DIP
Mem Speed	150ns	120ns	100ns	120/100 ns	80 ns	100ns	100 ns	100/80 ns	100/80 ns
Mem Config	512/640K/1M	512/640K/1M	512/640K/1M	512/640K/1/2/4M	512/640K/1/2/4M	512K/1M to 6M	512K to 8MB	1/2/4/6/8/10 MB	1/2/4/8/16/32MB
8 Bit Slots	8	8	8	2	2	(2) 5	2	2	1
16 Bit Slots	0	0	0	6	6	(3) 3	6	5	5
32 Bit Slots	0	0	0	0	0	0	0	1	2
BIOS	Quadtel	Quadtel	Quadtel	Award AMI	Award AMI	Phoenix	Phoenix	Award/Phoenix	AMI
Relative Speed	9	12.4	15.6	15.6	21.6	15.4	18.0	25.5	33.0(2 banks)
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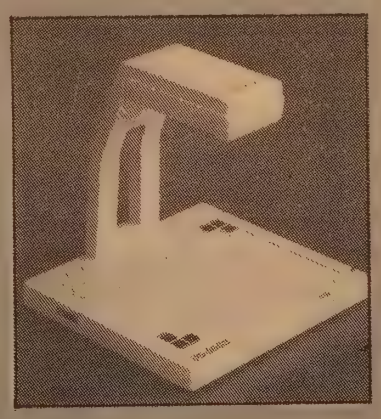

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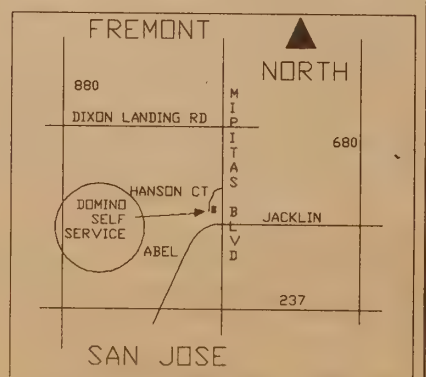

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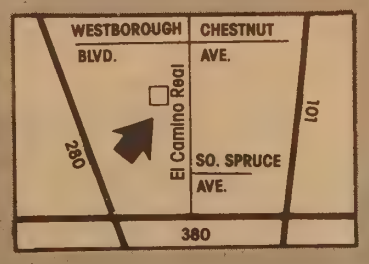

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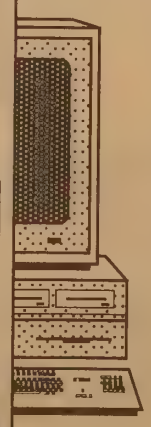

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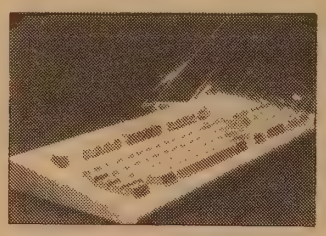

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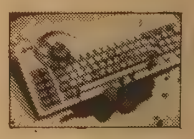

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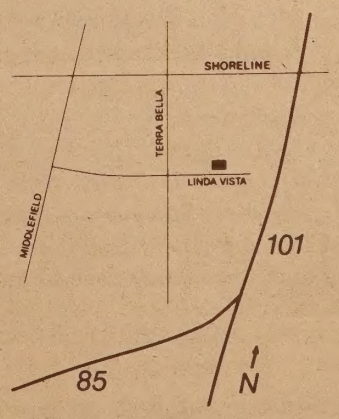

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The Modern Computer Dealer And The Age Of Consent

Would You Let Your Daughter Work There?

This is the year of the computer dealer. The "new" computer dealer, it seems. My favorite computer stores have long since been out of business. They went out of business once they began to listen to the experts telling them that they weren't making enough money. They were told to get rid of the tire kickers and kids and anyone suspected of wanting to buy mail-order software. They were told to stop catering to the customer.

So I wrote an article in *PC Magazine* suggesting that the computer stores ditch the new ideas that make the stores too slick, too put-offish, too depressing, too impersonal. My favorite anecdote is how the popular and money-making Byte Shop of Berkeley hired a consultant to modernize its operations. The first thing that happened was they changed the name of the store to Track Computers. This was after years and years of establishing itself as the Byte Shop. Also, the funk was out and slick was in. Within no time the place was broke and now there sits MicroWorld—an Atari store.

Anyway, after writing the *PC Magazine* column, I received a ton of letters pro and con concerning the management of today's computer stores. Some of the mail was pretty pathetic. So I waited to write another column. This time it was in *MacUser*.

I retold an experience in a Chicago ComputerLand where a ditzy saleswoman and some forgettable fellow refused to let me even touch a Mac when I asked if I could print out a one-page memo—this despite the fact that there was nobody in the store and they had nothing better to do. This was even after I offered to pay. It was irksome.

Unfortunately, this complaining has done no good. Readers say that I'm wrong or just persnickety. That is, until THEY go into a store! Still, this griping may be a lost cause.

Whatever the case, I was glad to see a memo from Alan Mandler, who discussed his experiences at an unnamed ComputerLand. I might add that there are some great ComputerLand stores—the Hokinsville, Kentucky store comes to mind. But like many franchiches where the parent doesn't ride herd on the offspring, you end up with too many stores that cause people to generalize. You can see how this process works in the next letter. Read it and pass along any horror stories you may have to me c/o *MicroTimes*.

John:

This message comes to you from my new NEC UltraLite computer recently purchased at ComputerLand—a chain of stores whose employees you criticized in a recent article.

Now, I don't normally buy at ComputerLand. I called every alternative in the Bay Area—from Winner's Circle on—and every mail order company in *PC Magazine*. If I would have endured the busy signals at 47th Street, I could have saved some bucks. But you know how rationalization is: I HAD to have it before my next trip.

Anyhow, as fate would have it, ComputerLand was the only store that had the units in stock. So, I put on my identity-concealing sunglasses and snuck into the store.

John, you might have been much too harsh in your judgments about store personnel. After all, I think an intensive training at PSU (Pacific Stereo University) provides invaluable experience. The parallels between computer and stereo sales are endless. For example, stereos are battery or AC powered, and so are some computers. Stereos sit on shelves around the store, and so do some computers. They both have price tags when the price is good. They both record on magnetic media and can read CDs. Need I go further?

As a matter of fact, John, I was privy to some very technical discussions that took place between the sales personnel and customers. For instance, one customer asked the difference between serial and parallel connections. "Well," said the crack saleswoman, gesturing with her hands at all times, "there's uh ... you know the signal ... one is for ... ummm printers ... and the other is used for, well you know..."

The customer, nodding throughout, attempted to interpret the sales lady's hand gesturing, and interjected, "You mean one has the square connector and the other one is round?"

The sales person paused, smugly looked at the customer, waved her finger at him while shaking her head up and down, and said, "Exactly!"

I had to turn away.

Of course, on the other side of the store was ComputerLand's fashion statement: you know, the kind of guy who believed the clothing store mannequin. During my two-and-a-half-hour stay, his sweater, which I believe was steamed into position onto his shoulders, with its sleeves permanently starched into a simple knot, never moved. The shirt was fluorescent pink. The top three buttons were undone. The chains were gold. The socks were absent. The intelligence was where the socks were. There was even less substance. Oh yeah, and his hair was slicked into a "mussed up" position. This is what I look for from all computer salesman: the look that inspires confidence, the look that says, "Entrust me with a several-thousand-dollar decision." Listening to this guy talk was really frightening, especially when he started laughing about accidentally erasing a customer's files. These things happen, I suppose.

One should wonder why I was in a ComputerLand long enough to witness such things. Once again, rationalization is a powerful force. I needed that computer. I'd like to say that this recent experience was a lesson, but only time will tell.

Since the store didn't have the NEC disk drives, since my PC was on loan, and since my Mac II would do me no good, I needed to transfer software from a store PC onto the NEC. After an hour and a half of "technical assistance" from the store's "technician," I asked if I could do it myself. I had never used *LapLink* or the NEC but something told me my lack of experience would put me a couple of notches ahead.

After starting from scratch and successfully transferring the data, I left the store as quickly as possible. Once home, surrounded by the higher intelligence of my potted plants, I breathed deep, soothing breaths of relief. I then opened up my NEC, turned on the power, and discovered that none of the information I loaded was there. The technician, despite the store's claim of having sold dozens of these units, neglected to activate the unit's backup memory. Silly me. I thought I could, at least, trust them to unpack everything and get started.

Wrong!

Regards,
Alan

"John, you might have been much too harsh in your judgments about store personnel. After all, I think an intensive training at PSU (Pacific Stereo University) provides invaluable experience. The parallels between computer and stereo sales are endless. For example, stereos are battery or AC powered, and so are some computers."

John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine *and* MacUser, *considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

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